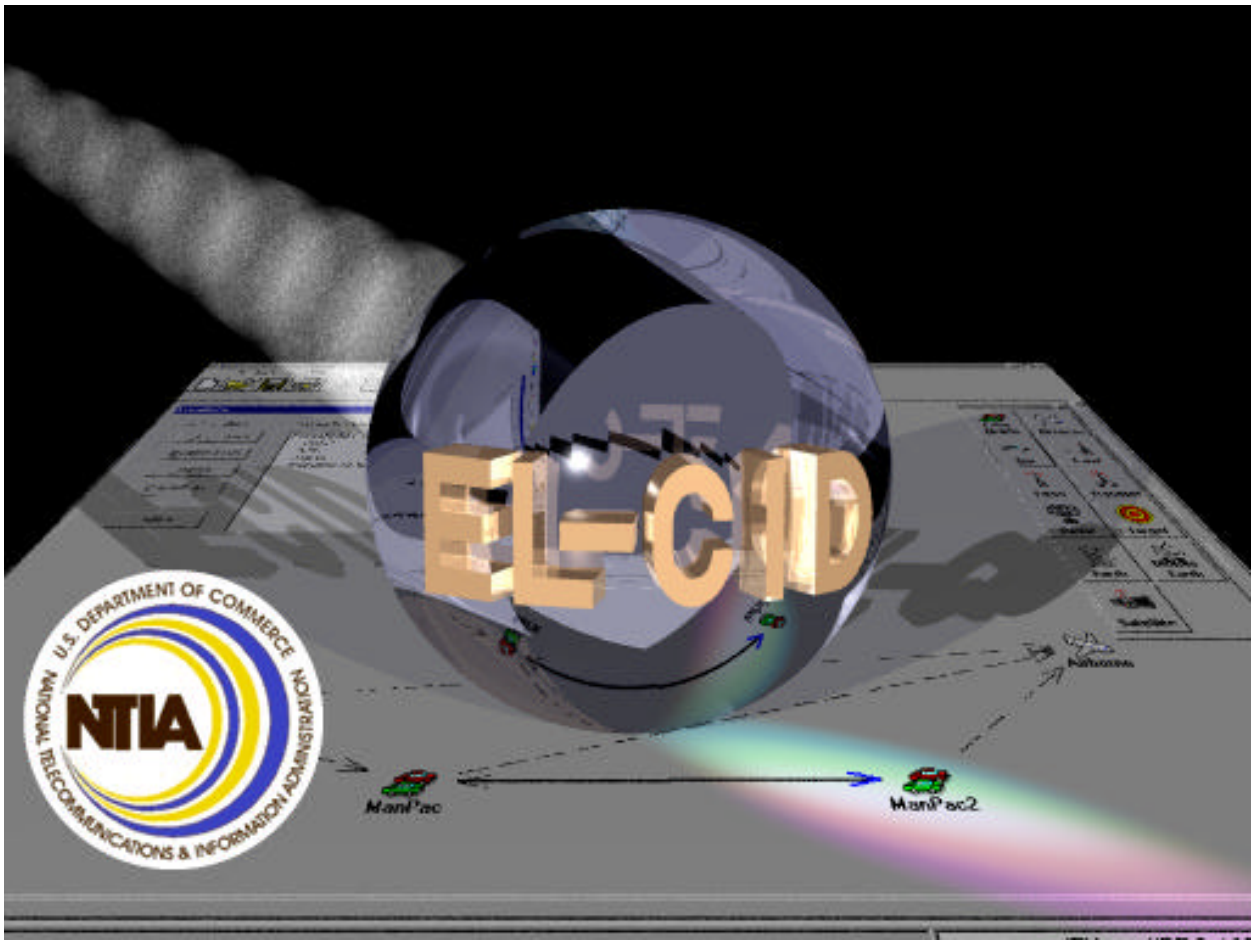


Equipment Location – Certification Information Database (EL-CID)

Version 2

Help Manual

Table of Contents

Welcome To EL-CID

The **NTIA** *(National Telecommunications and Information Administration)* concept is to provide a tool with a graphical, icon-based interface that is supported by sophisticated logic that captures system inter- and intra- relationships and prompts for entry of minimal system parameters. The **EL-CID** *(Equipment Location Certification Information Database)* is the implementation of that concept.

To install the EL-CID software, see Installing EL-CID. To start the program, see Starting the EL-CID Program. Before creating new records, please read Overview of the Software. To begin creating Certifications using EL-CID, set your preferences, then see Creating and Editing Certifications: Overview.

If you need additional assistance not provided in this manual, see Obtaining Software Support.

To save time when learning EL-CID, the program comes with several sample records you can import into the database. They are located in the Samples folder under the EL-CID Program Folder (which defaults to C:\Program Files\El-cid). See Importing Data.

Software Requirements and Installed Components

The minimum hardware and software required to install and use EL-CID is:

- One of the following operating systems:

  Windows 98 SE.
  Windows ME (See note below)
  Windows NT 4.0 or later. (Service Pack 4 or later is required for NT 4.0)
  Windows 2000 (Service Pack 2 or later is required for Windows 2000)
  Windows XP
- 166Mhz or faster CPU (recommended)
- 32 MB RAM minimum. (64 recommended).
- 800x600 pixel (256 colors) minimum video display.
- 30 megabytes free disk space.
- If your machine has Windows 95 and you have not already installed Distributed Component Object Model for Windows 95 (DCOM95), you will need an additional 2MB of free disk space. This component is REQUIRED.
- If your machine has Windows 98 and you have not already installed Distributed Component Object Model for Windows 98 (DCOM98), you will need an additional 2MB of free disk space. This component is REQUIRED.
- If you do not have Microsoft Data Access Components (MDAC) version 2.1 already installed on your computer, the EL-CID install will prompt you to install the MDAC. The MDAC is REQUIRED. You will need an additional 15MB of disk space to install MDAC.
- If you do not have Internet Explorer 4.01 or later already installed on your computer, the EL-CID install will prompt you to install Internet Explorer 5.00. You will need an additional 6 to 45 MB of disk space to install Internet Explorer 5. Internet Explorer 5 is OPTIONAL, however you must have at least Internet Explorer 3.03 installed on your computer for EL-CID to function.

INTERNET EXPLORER 5 IS OPTIONAL

If you do not have Internet Explorer 4.01 or later already installed on your computer, the EL-CID install will prompt you to install Internet Explorer 5.00. IE 5 is required for on-line help to function properly. You may skip the install of Internet Explorer but on-line help may not function if you do. In addition, Internet Explorer 3.02 or above is required for EL-CID to function properly.

EXISTING EL-CID DATA

During installation, the Setup program will detect if you are installing EL-CID on a computer that has had a previous installation of EL-CID. If so, the Setup program will provide options for transferring existing data from the old install to the new install. See Installing EL-CID for more information.

WINDOWS ME

There is a security vulnerability in Windows ME having to do with the Microsoft Jet Engine. The minimum version of the Microsoft Data Access Components (MDAC) that would remove this vulnerability is MDAC 2.5 SP2. Windows ME comes with MDAC 2.5 installed, but not SP2. Because of Windows System File Protection, the EL-CID Install cannot install this service pack. As of June 2002, Microsoft does not provide an operating service pack to fix this problem either. You can remove the vulnerability by installing Microsoft Jet Service Pack 6 for Windows ME. A copy of this is provided for your convenience in the

Support folder on the CD, however, you are urged to visit the Microsoft website for more information and the latest updates. For more information about the Jet vulnerability, see article MS99-030 on the Microsoft website (www.microsoft.com).

WINDOWS 2000

Because of Windows System File Protection, the EL-CID Install cannot install MDAC 2.5 SP2 on computers with Windows 2000. If the install detects that MDAC 2.5 SP2 is needed, it will stop the install. You must separately install Windows 2000 Service Pack 2. A copy is provided on the EL-CID CD in the Support folder, but you are urged to check the Microsoft website for additional information and the latest updates. After installing the service pack, restart the EL-CID install.

SYSTEM COMPONENTS INSTALLED

The EL-CID installation installs or upgrades to the following operating system components:

- Microsoft Data Access Components (MDAC) version 2.5 SP2. This package includes Microsoft ODBC drivers, OLE DB Provider drivers, Microsoft Jet Engine, and other components of the Microsoft Universal Data Access (UDA). (These components are also installed with SPECTRUM XXI and FARS.)
- On Windows 95 machines, Distributed Component Object Model for Windows 95 (DCOM95) version 1.3.
- On Windows 98 machines, Distributed Component Object Model for Windows 98 (DCOM98) version 1.3.
- Microsoft Internet Explorer version 5.00.2014.0216 (product version 5.00).
- Microsoft XML Parser 3.0 SP2, msxml3.dll, msxmla.dll, and msxml3r.dll (file versions 8.20.8730.1).
- AltaMap map control, version 4.0.1.27, altamap.dll.
- VideoSoft FlexGrid Pro OCX, version 7.0.0.78, vsflex7.ocx.
- Sheridan Splitter ActiveX Control, version 2.0.0026, Splitter.ocx.
- VideoSoft VsPrint Control, version 7.0.0.25,VsPrint7.ocx.
- VideoSoft Portable Data Format (PDF) Control, version 7.0.0.8, VsPDF.ocx.
- DynaZIP ActiveX components, version 4.04, dzactx.dll, duzactx.dll, dzprog32.exe.
- Microsoft Windows Common Controls, version 6.00.8418 (SP3), mscomctl.ocx.
- Microsoft Tabbed Dialog Control, version 6.0 (SP3), tabctl32.ocx (6.00.8418).
- Microsoft Rich Textbox Control 6.0, RichTx32.ocx (6.00.8418), RichEd32.dll (6.00.2134.1).
- Microsoft Jet and Replication Objects 2.5 Library, msjro.dll (2.52.6019.1).

Installing EL-CID

The EL-CID Setup program will install EL-CID for the first time on your computer, or it will upgrade from an older version to a newer version. When upgrading, you are given an opportunity to transfer data you've been working on into the new version.

To install EL-CID on your computer:

1. Check the Software Requirements.
2. If installing on a Windows NT, Windows 2000, or Windows XP computer, log into an account with full Administrator privileges.

   IMPORTANT: Some "network Administrator" accounts lack sufficient privilege to properly install the software. Many accounts created according to DISA security requirements fall into this category. If you install from such an account, certain key system components could be irreparably damaged. Seek help from your system administrator before installing EL-CID.
3. Insert the EL-CID installation CD in the CD-ROM drive. If CD autostart is enabled, the EL-CID install program will automatically begin after a few seconds. If not, use Windows Explorer and double-click on SETUP.EXE in the root folder of the CD
4. After the introduction, a screen displaying the latest release notes will be displayed. Use the scroll bar and read this screen carefully before proceeding.
5. For the operating systems below, a minimum Service Pack level is required. If the install detects that one of these Service Packs is required, the install will display a message and stop. After installing the Service Pack and rebooting, repeat Step 2.

Operating System	Minimum Service Pack Level
Windows NT 4	Service Pack 4
Windows 2000	Service Pack 2

   Note: A copy of Windows 2000 Service Pack 2 is on the EL-CID CD in the Support folder, however, you should check the Microsoft website for the latest information and updates.
6. Follow the rest of the on-screen instructions. You may be prompted to reboot your computer (this could happen several times), which you must do. After each reboot, log into the same (privileged) account from which you started. Wait a few moments for the EL-CID install to restart automatically. If it does not, repeat Step 4.

Database Upgrade Wizard

If the install detects a previous installation of EL-CID, it will do two extra things:

1. If you are installing EL-CID into the same folder as the previous install, it will ask you if you want to preserve the data from the previous install. If you click Yes, it will copy the contents of the program folder to another folder.
2. At the end of the install, it will offer to run the Database Upgrade Wizard so that you can transfer any records you have been working on, from the old installation to the new installation. See Database Upgrade Wizard for more information.

Post-Install Procedures

Computer Data, Time, and Timezone

EL-CID relies on the computer systems' date, time, and timezone settings in order to timestamp records. Please make sure these are properly set on your system before running EL-CID.

Adobe Acrobat Reader

Adobe Portable Document Format (PDF) files are often added as attachments to EL-CID records. In order to view these attachments, you must have a PDF Reader. A copy of Adobe Acrobat Reader is available on the EL-CID install CD in folder "Adobe Acrobat Reader" or it can be downloaded from the Adobe website.

Install ITU Software

If you will be working on space systems, you may be required to submit notification to the Radiocommunication Bureau (BR) using the ITU software (Spacecap). See Section 3.3 of the NTIA Manual. Install the ITU software following the distributor's instructions and set the path to the ITU program in the EL-CID preferences. See System Preferences for how to do that. (The ITU software is not distributed with EL-CID software.)

Note to System/Network Administrators

EL-CID users require Read/Write access to the EL-CID Program Folder and its subfolders. By default, EL-CID installs to folder

C:\Program Files\El-cid

MICROSOFT FINDFAST

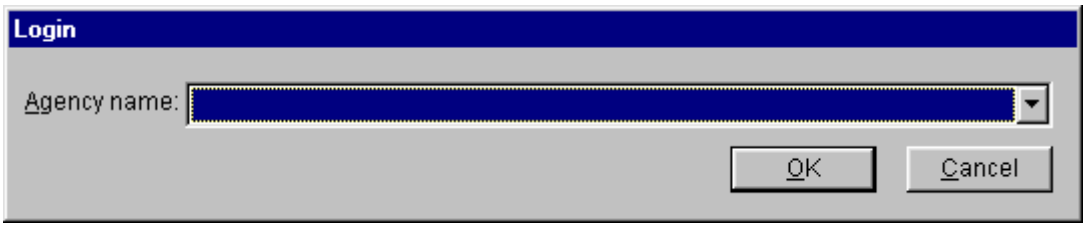
If you have installed Microsoft Office on your computer, you have probably installed a feature called FindFast. In some cases, FindFast causes EL-CID to malfunction. You should turn FindFast off. See articles Q158705 and Q199787 on the Microsoft website (www.microsoft.com).

Upon completion of the install, see Starting the EL-CID Program.

Starting the EL-CID Program

To start the EL-CID program, double-click the **EL-CID** icon 

on your Windows desktop, or click the **Start** button, then click **Programs**, then click **Equipment Location - Certification Information Database**, and finally click **EL-CID**. The **Login** screen appears.



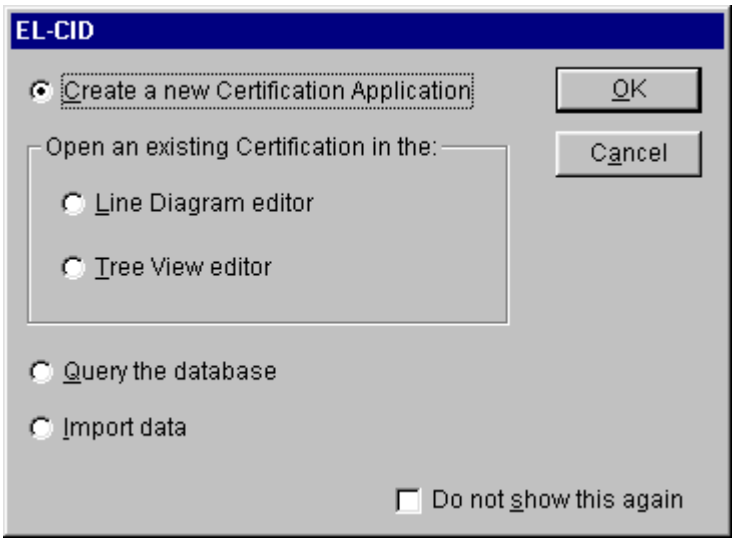
Choose your **Agency name** by clicking the down arrow button  and clicking on your agency in the list that drops down. Then Click **OK**.

Note: When your start EL-CID in the future, it will automatically default to your agency.

Note: If your agency does not appear in the list, exit EL-CID by clicking **Cancel**. Notify NTIA. See Obtaining Software Support. NTIA will create a new agency record and send it to you along with instructions on how to add the new agency to your database.

Note: If you are a manufacturer, choose agency "Any Manufacturer".

The first time you run EL-CID, the Startup Wizard screen appears.



Note: If you logged in as "Any Manufacturer", a slightly different version of the Startup Wizard screen appears.

Select what you want to do by clicking on one of the radio buttons, then click **OK**. Click **Cancel** if you want to go directly into the EL-CID program without the aid of the Startup Wizard.

Check the **Do not show this again** check box if you don't want to use the Startup Wizard in the future.

Once the EL-CID program has begun, you can perform the following activities.

- Set your program Preferences.
- Create a brand new Certification Application. Before creating new Certification Applications, please read Overview of the Software.
- View or edit an existing Certification record in the Tree View.

- Perform a query against the database.
- Print a Certification record.
- Import records into the database.
- Export records from the database.
- Compare any two records.
- Delete records from the database.
- Check a Certification for compliance with NTIA (and other) standards.

Note: You cannot run more than one version of the EL-CID program at one time.

Overview of the Software

The main purpose of EL-CID is the creation and maintenance of Certification Applications along with their supporting equipment and location data.

EL-CID is designed to permit the electronic exchange of this information among EL-CID users and between EL-CID users and NTIA. At this time, EL-CID is not a networked application, therefore it has some special features to accommodate the exchange of data which you should understand.

Creating Certification Applications

When you create a Certification Application, the first thing you normally do is to create a line diagram which is a logical picture of the system. You drag station icons onto the diagram and then draw Links between them. Next, you add Transmitter, Receiver, and Antenna equipment records to the stations. You may use existing equipments in the database, or create new ones. (EL-CID encourages reuse of existing equipment records in order to avoid inconsistency and duplication of data.) Next, you specify Locations where you want the equipment to be certified for use. Finally, for each Link in the diagram, you select a Station Class(es), select the transmitting and receiving equipment(s), and select the modes (frequencies, powers, and emissions) to be certified. See Creating and Editing Certifications: Overview for more information.

Before sending a Certification Application to NTIA, you must run Compliance Checks against the record, which will identify possible errors or missing data.

Equipments versus Certifications

When you create a Transmitter equipment record, you specify all the technical capabilities of the equipment, including frequencies, powers, and emissions, which together are called the Available Modes of the Transmitter. When you specify the modes to be certified, you choose a subset of Selected Modes you want to certify from all the Available Modes the Transmitter supports. When NTIA approves a Certification Application, they choose a subset of Accepted Modes from the Selected Modes you have requested. In summary, the Accepted Modes of an approved Certification may be a subset of the Selected Modes of a Certification Application, which may be a subset of the Available Modes of the Transmitters used in the Certification. In addition, Certification Applications contain the locations where you want to certify the equipment for use. When NTIA approves the Certification, they may restrict or add to these locations, which are called the Accepted Locations. Notice therefore, that it is not precise to say a "transmitter record has been certified". To determine the certified operating characteristics of a Transmitter record, one must look at the approved Certification record(s) that use the Transmitter. Given a Transmitter record, EL-CID provides an option to list the Certifications that use it.

Timestamps and Versioning

You can send Certification records to other EL-CID users for comment and/or modification. To do that, you export the record, send the export file to the other user (via e-mail for example), whereupon they import it into their EL-CID database. If the user modifies the record, they export it and send it back to you, whereupon you import the modified record into your EL-CID database. When you import the modified record, your database has both a copy of your original record and the modified record. (You can compare the original to the modification using the Comparison option.) To distinguish the versions of the record, a Timestamp (Date/Time Last Modified) is automatically maintained by the program.

Definition: The Timestamp of a record is the date and time (to the nearest second) that the record was last modified.

The Timestamp of records is displayed throughout the program to help you identify them. EL-CID provides options for listing multiple versions of records, listing older versions of records, and deleting

older versions.

Approval Status and Certifier Privilege

When you have finished building a Certification, you export it and send it to NTIA for approval. When a record is approved, its Approval Status changes to "Approved". When NTIA approves the record, they send it back to you and you import it. Special "Certifier" privilege is required in order to approve records.

Definition: A Certifier is an EL-CID user with the privilege to approve (or unapprove) records. In addition, Certifiers have other privileges and responsibilities. See Certifier Functions Overview for more information. NTIA determines who has Certifier privilege.

Once a Certification has been approved by NTIA, it may not be modified except by a Certifier.

In addition to Certifiers, there are users at NTIA with the ability to create a draft approved Certification. These users are called "Review Engineers". NTIA determines who has Review Engineer privilege. See Review Engineer Functions Overview for more information.

When you create a new Certification record, you may use existing equipments (Transmitters, Receivers and Antennas) and Location records or create new ones. Equipment and Location records can also be exported and imported and therefore they too have a Timestamp.

If you use an existing equipment or Location in your Certification, the equipment or Location record is "shared" between your Certification and another existing Certification, i.e., there is only one copy of the record in the database and both Certifications "point" to the shared record. If you were to modify the equipment or Location, you'd be modifying it in both Certifications that use it. But if the other Certification is already approved, modification cannot be allowed. Hence, equipment and Location records also have an Approval Status and when a Certification is approved, EL-CID automatically approves all the equipments and Locations it uses.

Note: If an equipment record is "Approved", it does not mean that all of the data in the equipment record has been certified -- it only means that the equipment is used in an approved Certification. As explained above, you must look at the approved Certification to determine the certified operating characteristics of the equipment.

Here is a key rule to remember:

Rule: If you are not a Certifier, you are not allowed to modify any record with Approval Status of Approved.

If you need to modify an approved record, you can get around this rule by making a copy of the record -- called "cloning", which automatically changes the Approval Status in the copy to "Unapproved" (and also updates the Timestamp). The cloned record must be re-submitted to NTIA for approval.

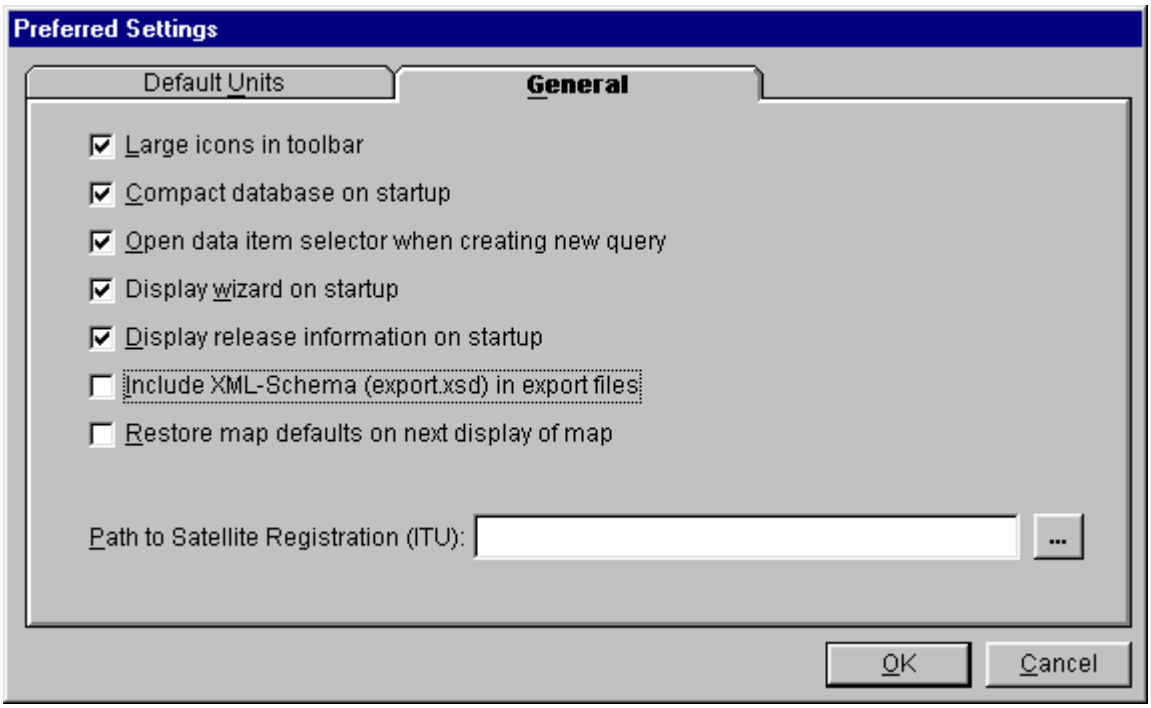
See About Record IDs, Approval Status, Timestamps, and Versions for more information.

To begin creating Certification records, set your preferences, then see Creating and Editing Certifications: Overview.

System Preferences

The **Preferred Settings** screen permits you to set the default units for entry of data items that have associated units and to set the tool bar to use large or small icons. To change your settings, click the Preferences button  on the tool bar or click **Edit**, and **Preferences**.

The **Preferred Settings** screen appears.



The screen has two tabs. The **General** tab permits you to set the following options:

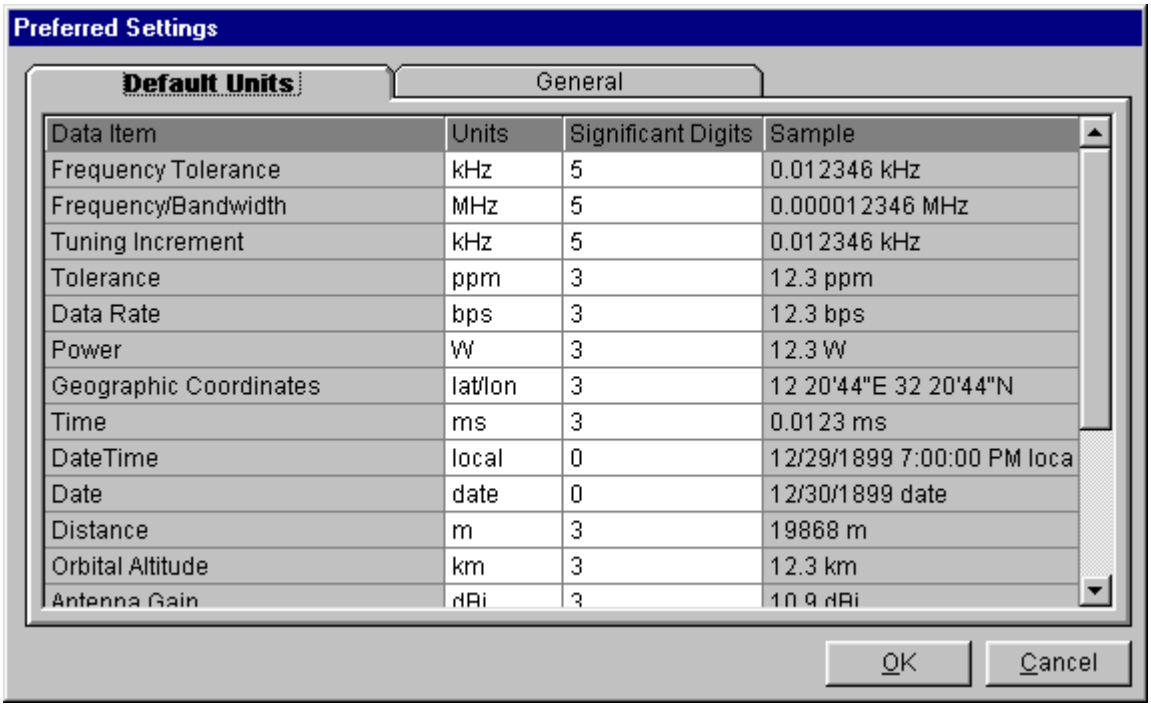
- Uncheck the **Large icons** check box if you want the tool bar to display using small pictures.
- To save some time at startup of the EL-CID program, uncheck the **Compact database on startup** check box (Compacting the database saves disk space and improves the performance of the software.) Remember to manually compact the database from time-to-time by choosing **Compact Database** on the **Maintenance** menu.
- When you create a new database query, the program normally assumes that you want to immediately pick a data item to query on and automatically displays the **Data Item Selector** screen. Uncheck the **Open data item selector** check box if you don't want to automatically display the **Data Item Selector** screen when starting a new query.

- When the EL-CID program first starts, an optional Startup Wizard is displayed to assist beginning users. Uncheck **Display wizard on startup** to turn this feature off.
- When the EL-CID program first starts, a screen displaying release information, including how to obtain help, is displayed. Uncheck **Display release information on startup** to turn this feature off.
- EL-CID export files are in XML format. If you want the export file to include the XML-Schema as well, check **Include XML-Schema (export.xsd) in export files**. (advanced users only)
- The EL-CID Locations Map normally preserves your layer settings from one viewing to the next. These settings include color, opacity, and labeling, and also your latest zoom settings. To restore the Map to the defaults used when EL-CID was first installed, check the **Restore map defaults on next display of map**. Note that this box is always unchecked when displaying the **Preferred Settings** screen, i.e., it is a one-shot option.

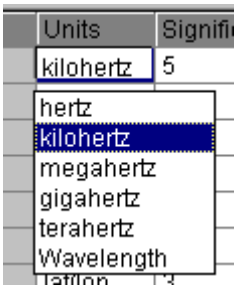
Note: When EL-CID is first installed, the first five options above default to checked.

The **Path to Satellite Registration (ITU)** box is used to tell EL-CID where to find the ITU program (Spacecap), which is used to enter ITU satellite data. If you have the ITU software installed, click the Browse button [...], and navigate to the ITU program executable file. If you installed the ITU software in the default location, it will be **C:\BR_SOFT\Spacecap\Spacecap.exe**.

The **Default Units** tab permits you to control the units used to display numeric quantities throughout the program.



You cannot change anything in the shaded columns. Click on the units abbreviation in the **Units** column next to the **Data Item** whose units you want to change. A pick list of available units drops down.



The **Sample** column displays an example of what a quantity might look like in the chosen units. Change the **Significant Digits** to control the rounding of the number displayed.

Note: Internally, the program always stores numeric quantities using fixed units. Changing the units on this screen only affects how the quantities are displayed on your computer. Another user can display the same quantities using different units and significant digits. The program always stores numeric quantities with the number of significant digits that the user typed in, but always rounds the display to the Significant Digits preference.

Definition: Significant Digits may be defined as follows:

1. Digits 1 through 9 are always significant.

   Zeroes between significant digits are always significant.
2. "Filler" zeroes after the decimal point are not significant.
3. Trailing zeroes to the right of the decimal point are significant.
4. Zeroes to the left of the decimal point may or may not be significant.

For example, 0.001230 has 4 significant digits. 1.0023 has 5 significant digits. 12300 has at least 3 significant digits but may have as many as 5.

Note: The program doesn't actually follow the rules above. It converts Significant Digits into a Display Error according to the following formula:

DisplayError = 5 * (10 ^ -SignificantDigits)

The program then rounds the number until the ratio of the difference between the actual and the displayed numbers divided by the number is less than or equal to the Display Error, i.e., if x is the actual number and x' is the displayed number

Err = | x - x' | / | x |
Err <= Display Error

To save your settings, click the **OK** button, or to discard your changes click **Cancel**.

Obtaining Software Support

NTIA maintains a website with the latest information concerning EL-CID at the following address

http://ntiacsd.ntia.doc.gov/Elcid/

On this website, you can read the latest news flashes concerning EL-CID, read Frequency Asked Questions (FAQs), obtain software updates and patches, track Problem Change Requests, and more.

Problems, technical questions, and comments may be sent to ELCIDHelp@AlionScience.com.

The e-mail address for Certification Applications to be sent to NTIA is

spsreview@ntia.doc.gov

Note: If the record is classified, you should handle the export file using approved security procedures.

A Program Change Request (PCR) form is available in the Documents folder in the EL-CID Program Folder. The Program Folder is determined when EL-CID is installed and defaults to

C:\Program Files\El-cid

If you have Microsoft Word, you can fill out this form electronically and e-mail it to the address above.

Creating and Editing Certifications

Overview

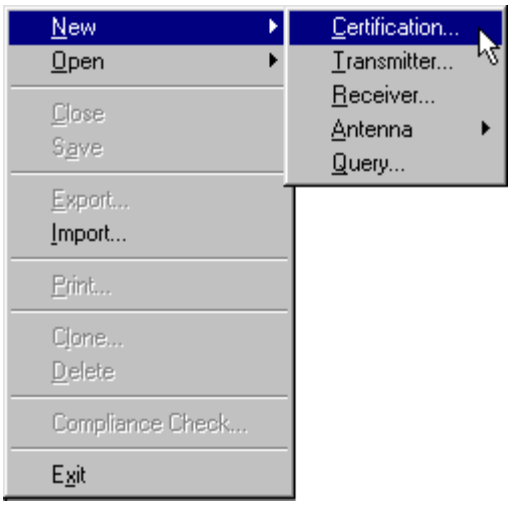
Creating a new Certification Application or editing an existing one consists of seven main steps:

1. Create a new Certification record or open an existing one.
2. Edit the Line Diagram. In this screen, you will drag station icons onto a diagram and link them together.
3. Add equipment data to the stations in the Tree View.
4. Choose Station Classes and equipment Selected Modes in the Link Information screen. The software automatically checks the transmitter frequencies against the frequency allocation tables and breaks the bands into "In-band" and "Out-of-band" ranges. For Satellite links you will also choose Radio Services.
5. Specify Locations. If the Certification is not a Trunking System or a space system, you generally specify one or more Locations which apply to the entire Certification. If the Certification is a Trunking System, you must specify a Location for each base station and repeater in the system, as well a Location for the system as a whole. If the Certification is a space system, you specify a Location for each ground station in the system, and you specify satellite orbital Locations for each satellite in the system.
6. If the Certification is classified, enter Security Information.
7. Run Compliance Checks against the Certification and fix any FAILUREs detected.

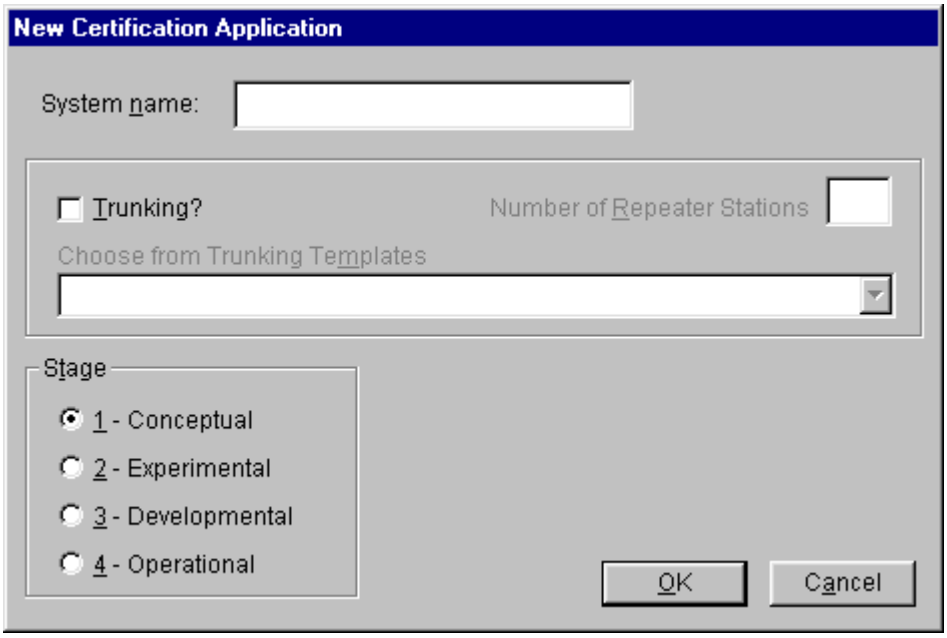
Creating a New Certification

Note: If you are creating a Trunking System in order to comply with sections 10.8.1 or 10.8.2 of the NTIA Manual, see About Trunking Systems.

To create a new Certification Application, click the Create Certification button on the tool bar, or click **File** on the main menu, then click **New**, then **Certification**.



The **New Certification Application** screen appears.



Enter a name for the new Certification in the **System Name** box. This is the name of the overall system. In many cases, the name will be same as the nomenclature of the transmitter equipment used in the system, but for more complex systems, it may be a more descriptive name. Do not include agency name or J/F 12 numbers in the System Name. The name may be up to 35 characters long. It may not include the vertical bar character (|) or the word " and " (use " AND " or " & " instead). You will be able to change the System Name later in the Tree View.

If you will be creating a Trunking System in order to comply with sections 10.8.1 or 10.8.2 of the NTIA

Manual, see About Trunking Systems, otherwise leave the **Trunking?** box unchecked.

Choose the **Stage** for which you are requesting approval from NTIA. The higher the Stage, the more scrutiny the system will receive at NTIA. See Systems Review Process. Higher stages also get more stringent Compliance Checks. You will be able to change the Stage later in the Tree View.

Note: When creating a Stage 2 or above Certification Application, and a record for an earlier stage of the Certification already exists in the EL-CID database, you can save a lot of time by cloning the existing record, then making changes as needed for the new stage. See Cloning Records.

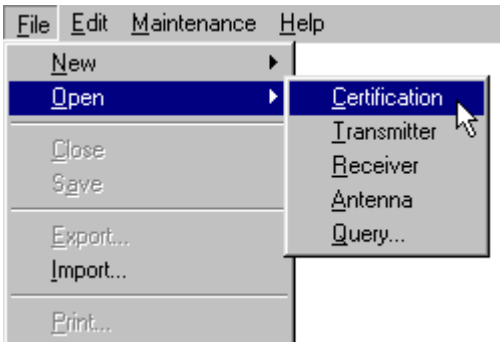
Click the **OK** button. The Tree View screen appears with a blank Line Diagram automatically selected. See Line Diagram for the next steps in creating the new Certification Application.

Note: If an existing Certification record exists in the database with the same Agency, System Name, and Stage, a warning message appears. In this case, you should either 1) click the **Cancel** button and open the existing Certification, or 2) change your System Name to avoid confusion with the other record.

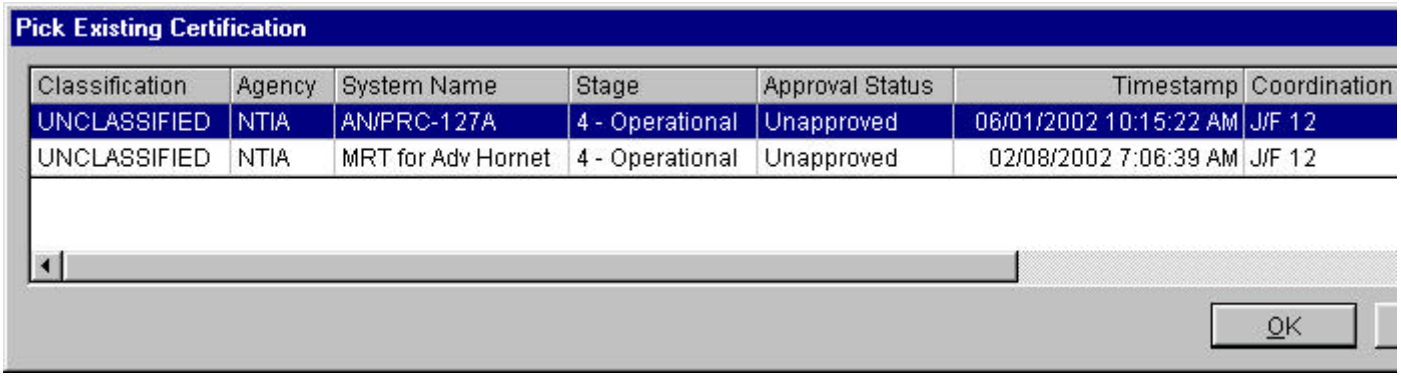
Note: You can also import Certifications that have been exported by a compatible version of EL-CID. See Importing Data.

Opening an Existing Certification

To open an existing Certification for display or edit, click the Open existing Certification button  on the tool bar, or click **File** on the main menu, then click **Open**, then click **Certification**.



The **Pick Existing Certification** screen appears.



Select one by clicking the row in the grid and click the **OK** button. The Certification appears in the Tree View screen.

Note: You may also open existing Certifications by building and running a query. See Creating or Editing a Query.

Line Diagram

The Line Diagram is used to create a logical picture of a Certification system. The diagram consists of one or more named Stations depicted by icons, which you create by dragging onto the diagram. Links between stations are drawn as arrows from the transmitting Station to the receiving Station. In some cases, a reverse link also exists and is drawn as a single line with arrows on both ends.

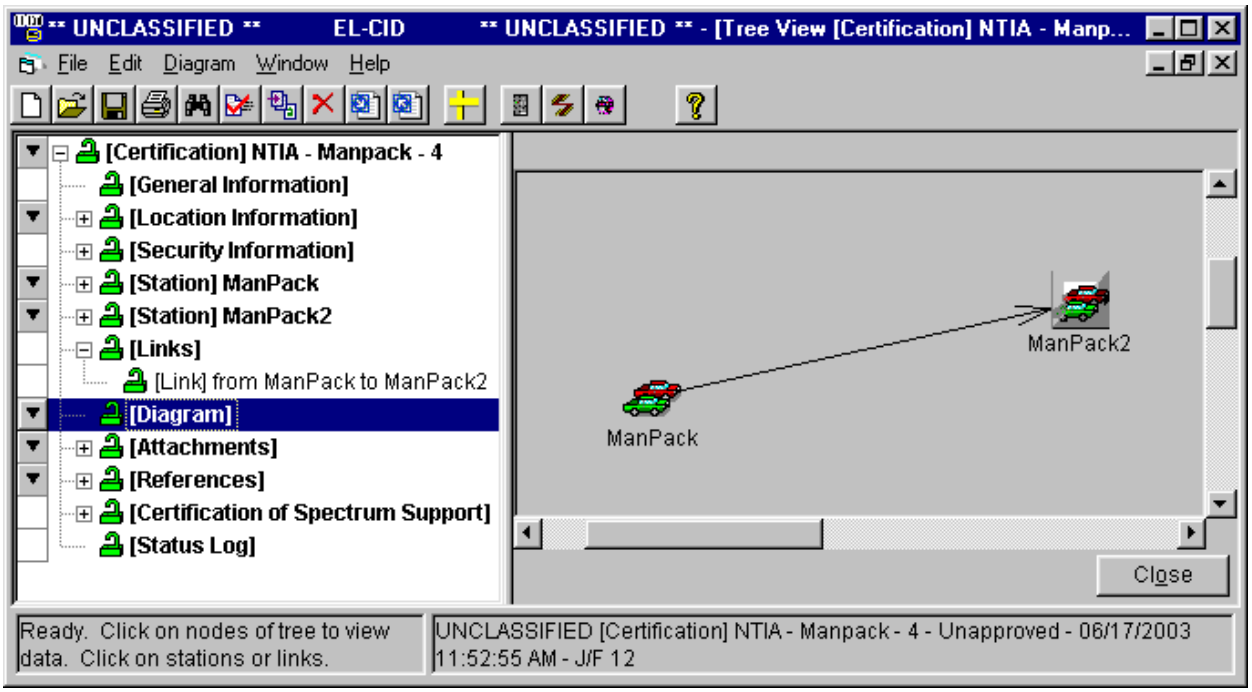
In order to create a new Certification record, you must first create a diagram.

Note that, unless the system is a Trunking System or a space system, the diagram does not depict specific station locations on the surface of the earth; rather the diagram is a logical depiction of the types of Stations and how they communicate with one another. In general, therefore, you will only need one (possibly two) icons of each station type on the diagram.

If the system is a Trunking System, you will create a station icon for each base station and repeater in the system. You will only need to create one icon for each type of mobile station in the system. See About Trunking Systems for more information.

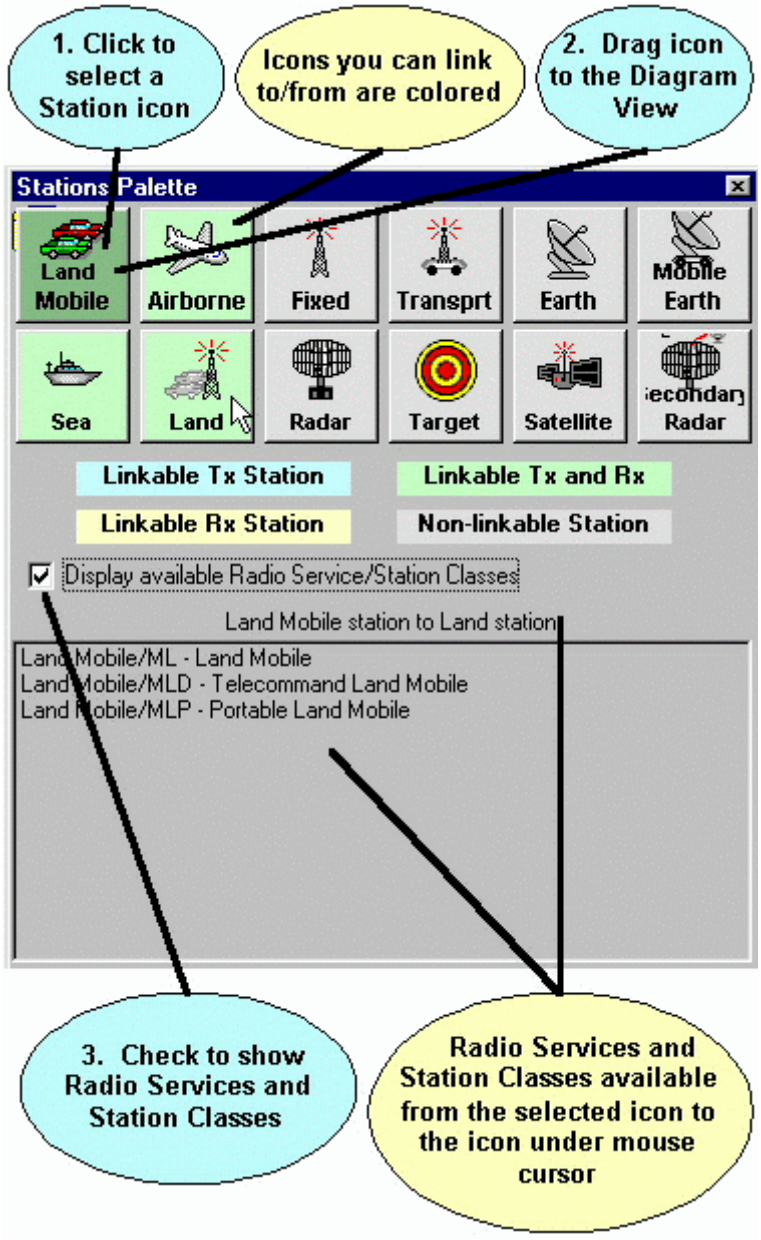
For space systems, you have the option of creating separate icons for each ground station in the system, or if all the ground stations use the same equipment, you can create a single icon to represent all the ground stations. Similarly, you may create icons for each satellite in the system, or if all the satellites are similar, you may create a single icon to represent them all. If you choose to create a single icon to represent multiple ground stations or satellites, you will attach multiple Locations to those icons. See Specifying Locations for more information.

The Line Diagram automatically appears within the **Tree View** screen whenever creating a new Certification Application. It also appears anytime you click the **[Diagram]** node in the Tree View. See Tree View for more details on operating the Tree View screen. For now, let's concentrate on creating the diagram.



Adding Station Icons to the Diagram

When creating a new Certification Application, the **Stations Palette** is automatically displayed.



If it is not displayed, you can display it by clicking the Stations Palette button  on the tool bar, or click **Certification** on the main menu, then click **Stations Palette**. To hide the **Stations Palette**, click the Stations Palette button again. The **Stations Palette** is a "stay-on-top" window that floats above the rest of the screen. You can drag the **Stations Palette** to anywhere you like by holding down the mouse button on the title bar of the **Stations Palette** and dragging the mouse to a new location.

Each of the icons you see on the **Stations Palette** represents a type of Station. The icons you choose for your diagram will determine the Radio Services and Station Classes available for the links you draw between them. In addition, there are rules about which icons can be linked to each other. For example, a **Radar** icon can only be linked to a **Target** icon.

Click a Station icon to select it. Other icons on the Station Palette change color to indicate how they may be linked on the diagram. (See Linking Station Icons below for how to draw links on the diagram.)

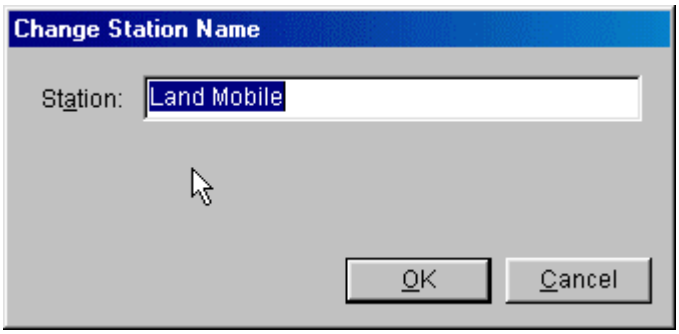
Note: The color of the selected Station icon is slightly darker than the rest of the icons.

- Blue. A link may be drawn from the blue icon to the selected icon. The selected Station icon will be a receiving Station. You may not draw a link from the selected icon to the blue icon.
- Yellow. A link may be drawn from the selected icon to the yellow icon. The selected Station icon will be a transmitting Station. You may not draw a link from the yellow icon to the selected icon.
- Green. A link may be drawn to or from the green icon to the selected icon. The selected Station icon will be either a transmitting or receiving Station, or both if you draw a link in both directions.
- Gray. You may not draw a link between the two icons.

Notice that, in many cases, you may draw a link between two copies of the same Station icon type. In this case, the selected Station icon will be green. For example, you may drag two **Land Mobile** Station icons to the diagram and link them.

If you are entering a system for which you know the Radio Service and/or Station Classes you want to use, check the **Display available Radio Service/Station Classes** check box. The bottom part of the **Stations Palette** screen continuously shows the Radio Service and Station Class combinations that are available for a link between the selected Station icon and the Station icon currently underneath the mouse cursor. Click on Station icons to select them, then hover the mouse cursor over icons until you see the Radio Service and/or Station Class you desire. Then drag the selected Station icon to the diagram.

To add an icon to your diagram, place the mouse cursor over the desired icon on the **Stations Palette**, hold down the mouse button, and drag the icon to the diagram. Release the mouse button when you've positioned the icon on the diagram where you want it. The **Change Station Name** screen appears



The program automatically fills in a name for the Station, based on the icon type. You can change this name to whatever you like. Station Names are limited to 64 characters in length. When you have entered the name, click **OK**.

For some icons, such as **Land Mobile**, the **Change Station Name** screen also requires you to pick the type of Station.

Once an icon is on the diagram, you may re-position it by dragging it to a new location.

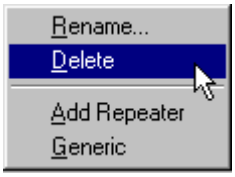
You can determine the type of any Station by placing the mouse cursor over the Station icon. After a moment, a tooltip will pop up giving the Station type.

To select a Station icon, click once on the icon. A solid border appears around the Station icon to indicate that it is selected.

To unselect a Station, click anywhere in the diagram.

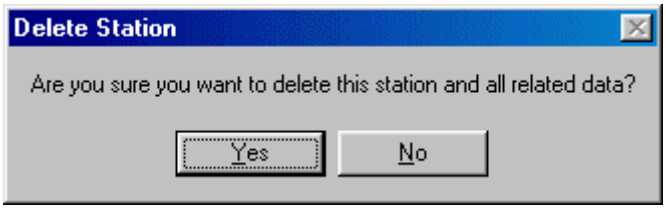
Deleting Station Icons from the Diagram

To delete an icon from the diagram, right-click on the icon and click **Delete** in the popup menu that appears



or click once on the icon to select it, then click **Station** on the main menu, then click **Delete**. The **Delete Station** message appears.

Note: The Station popup menu will not appear if the **Diagram View** is in **Link Mode** (see below).



The message is warning you that any data associated with the Station will also be deleted. This includes equipments you may have entered in the Tree View or link data you may have entered in the Link Information screen. Click **Yes** to delete the station, or click **No** to cancel.

Renaming Stations

To change the name of a Station, right-click on the Station icon and click **Rename** in the popup menu that appears, or click once on the Station icon to select it, click **Station** on the main menu, then click **Rename**. The **Change Station Name** screen appears (see above). For some icons, such as **Land Mobile**, this screen also permits you to change the type of the Station.

Linking Station Icons

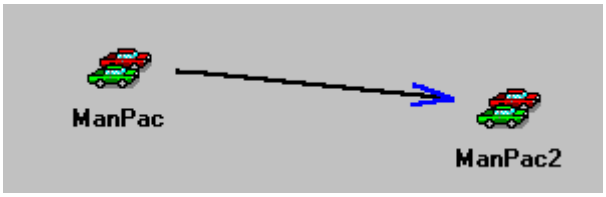
You draw links from a transmitting Station icon to a receiving Station icon. To draw links on the diagram, click the Link Mode button  on the tool bar, or click **Diagram** on the main menu, then click **Link Mode**. The words "**Link Mode !!**" appear at the top of the diagram whenever the program is in Link Mode. Click the Link Mode button again to turn off Link Mode. While in linking mode, click once on the transmitting Station icon, then click once on the receiving Station icon. A dotted line will be drawn between the Stations, with an arrowhead at the receiving end of the link.

Note: Links are displayed as dotted lines until you have selected at least one Station Class in the Link Information screen, whereupon they become solid lines.

Note: If you attempt to link incompatible Station icons, an error message will be displayed and the link will not be drawn.

Note: There can be only one link from any given transmitting Station to a receiving Station. However, you can draw a reverse link so that the receiving Station also becomes a transmitting Station and the transmitting Station also becomes a receiving Station. In this case, the line will have an arrowhead on both ends and will remain dotted until at least one Station Class has been selected for each Station.

To select a link on the diagram, click once on the link near the receiving end (arrowhead). The line becomes solid and thick and the arrowhead changes to blue.



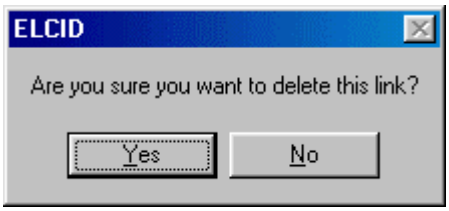
To unselect a link, click anywhere in the diagram.

Note: You cannot select links if the program is in Link Mode (see above). Click the Link Mode button on the tool bar to exit Link Mode.

Deleting Station Links

To delete a link from the diagram, right-click on the link line near the receiving end and click **Delete** in the popup menu that appears

or click once on the link to select it, then click **Link** on the main menu, then click **Delete**. The following message appears:



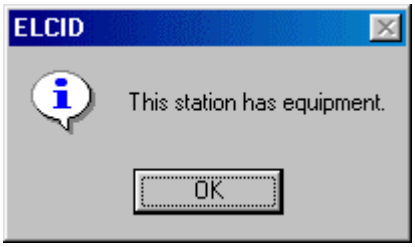
When you delete a link, any data you've entered on the Link Information screen (Radio Service, Station Class, Couplings, and Selected Modes) is also deleted from the Certification. Click **Yes** to delete the Link, otherwise click **No**.

Note: The Link popup menu will not appear if the program is in Link Mode.

Generic Stations

A generic Station has no equipment data associated with it. Normally, you must add at least one transmitter and transmitting antenna to the transmitting Station of a link, and you must add at least one receiver and receiving antenna to the receiving Station of a link. If you don't wish to enter equipment data for a Station, you can flag it as generic. (You might wish to do this if the equipment at the receiving station has previously been certified and therefore is redundant in your Certification application, or your Certification application does not need to include receiver data.) To make a Station generic, right-click on the Station icon and click **Generic** in the popup menu that appears, or click once on the Station icon to select it, click **Station** on the main menu, then click **Generic**. A shaded background appears around the Station icon to indicate that it is generic.

If you attempt to change a Station to generic when the Station has equipment data associated with it, the following message appears:



The program will not allow you to change the Station to generic until all the equipment data has been removed from the Station. See Adding (or Deleting) Equipments at Stations below.

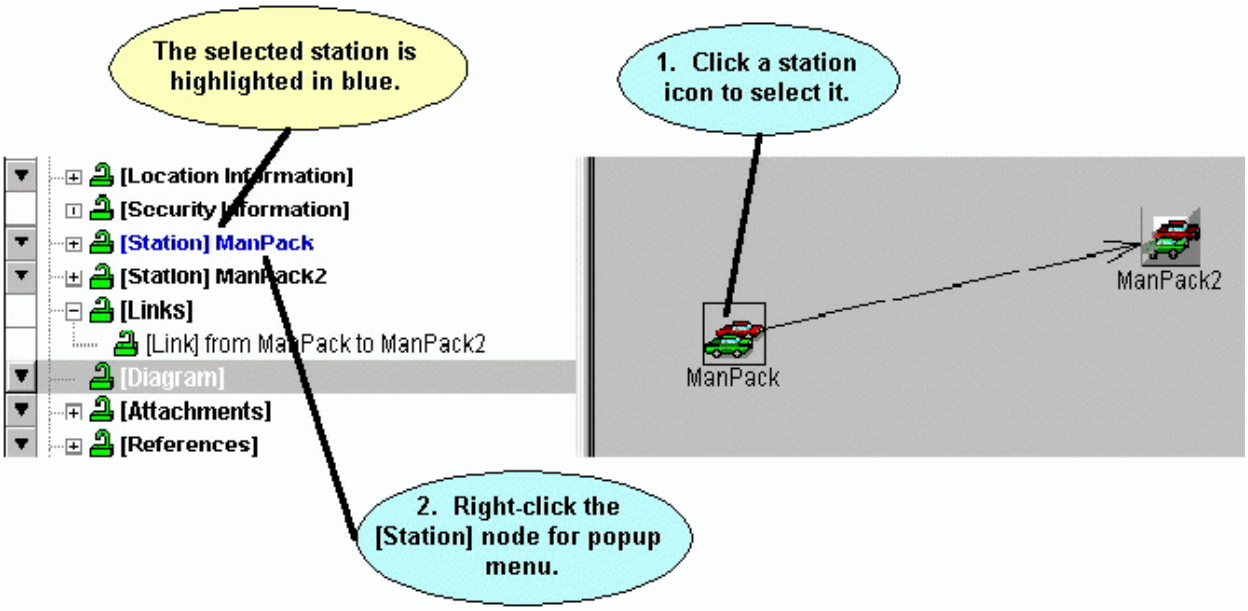
Note: Generic Stations may not be used on the transmitting end of a link. (They lack a transmitter.) When you change a Station to generic, any existing links transmitting from the Station are automatically deleted from the diagram.

Note: **Target** Stations are automatically set to generic when dragged onto a diagram.

Adding (or Deleting) Equipments at Stations

To complete a Certification, you must add equipment data to the Stations in the diagram. Each transmitting Station must have at least one transmitter and at least one antenna. Each receiving Station that is not generic must have at least one receiver and at least one antenna. Each transmitter must have at least one frequency and emission, and should have at least one power.

To add or delete equipment data for a Station, click on the Station icon to select it. The corresponding **[Station]** node in the tree will be highlighted in blue.



Click the blue station node to select it (the diagram disappears). Right-click on the station node and choose from the popup menu that appears. See Tree View for how to proceed. You can return to the diagram at any time by clicking the **[Diagram]** node in the tree.

Editing Link Information

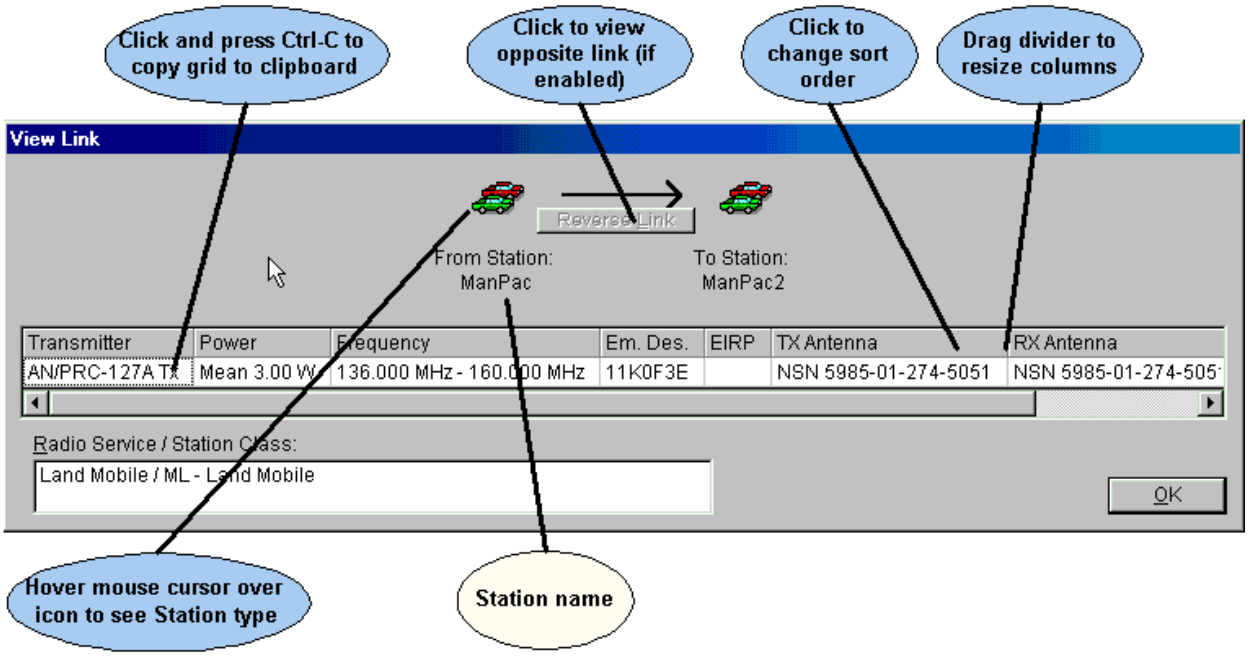
To complete a Certification, you must select at least one Station Class for each link in the diagram. In addition, you must select at least one Selected Mode for each link. (A Selected Mode is a combination of transmitter frequency, power, and emission designator.)

Tip: The links which lack this information will appear as dotted lines in the diagram, rather than solid lines.

To edit link information, right-click on a link near its receiving end and click **Edit** in the popup menu that appears, or click once on the link near its receiving end to select it, then click **Link** on the main menu, then **Edit**. See the Link Information screen for how to proceed.

Viewing Link Information

If a link already has information, you can view that information by right-clicking on the link near its receiving end and clicking **View** in the popup menu that appears, or click once on the link near its receiving end to select it, then click **Link** on the main menu, then **View**. The **View Link** screen appears.



The screen shows all the combinations of transmitter/antenna couplings with receivers and receiving antennas that have been chosen for the link, along with the Selected Modes for each combination. If a Coupling Loss was entered in the Link Information screen, the Effective Isotropic Radiated Power (EIRP) is calculated and shown. The selected Radio Service and Station Class(es) for the link are also displayed.

If there is a reverse link between the two Stations, the **Reverse Link** button will be enabled. Click this button to view the link information for the reverse link.

There a several operations you can perform with the grid on this screen (and others), such as sorting the rows and copying the grid data to the Windows clipboard. See Grid Options for more information.

Click **OK** when finished viewing the link information.

Specifying Locations

To complete the Certification Application, you must specify Location data. Location data may be attached to the Certification as whole, and/or to individual Stations. See Specifying Locations more information.

Printing the Line Diagram

See Printing Individual Certifications.

Saving the Line Diagram

To save the Line Diagram into the database, either click a different node in the tree, or click **File** on the main menu, then click **Save**.

Renaming a Certification or Changing Stage

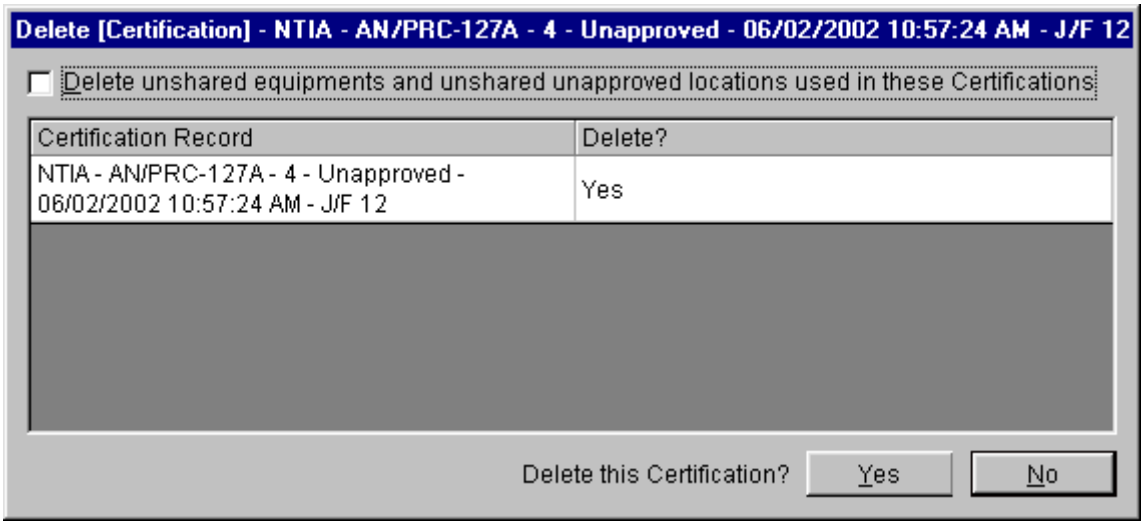
To change the System Name or Stage of a Certification, click the **[General Information]** node in the Tree View.

Making a Copy of a Certification

You can make a copy of an entire Certification record. With the Certification open in either the **Diagram View** or Tree View, click **File** on the main menu, then click **Clone**. See Cloning Records for more information.

Deleting an Entire Certification

To delete an entire Certification from the database, with the Certification open in either the **Diagram View** or Tree View, click **File** on the main menu, then click **Delete**. The **Delete [Certification]** screen appears.



Click **Yes** to delete the certification. The **Tree View** (if open) will close. Click **No** if you do not want to delete the Certification. For more information about deleting records, see Deleting Records.

Tip: There is no "Undo" in EL-CID. You may wish to first export a Certification record before you delete it from the database. See Exporting Data.

Tree View

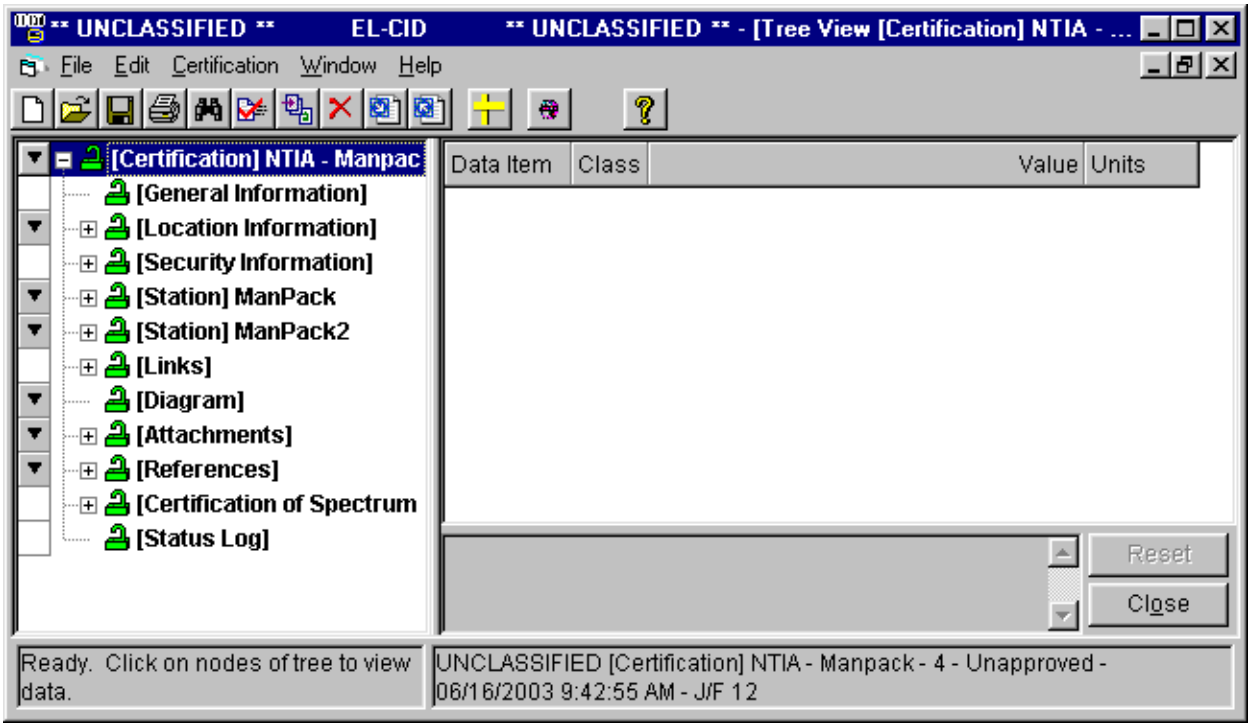
The Tree View is the main screen for entering Certification and equipment data.

Opening a Certification in the Tree View

There are several ways to open a Certification record in the Tree View:

- Create a new Certification Application,
- Open and existing Certification,
- or, build a query to select the Certification you want (see Creating or Editing a Query). Click on the desired Certification in the Query Results grid to highlight it, right-click on it and click **Edit in Tree View** in the popup menu that appears. This method can also be used to open an equipment (Transmitter, Receiver, or Antenna) or Location itself without opening a Certification. Build a query on the equipment or Location you desire instead of a query on Certifications.

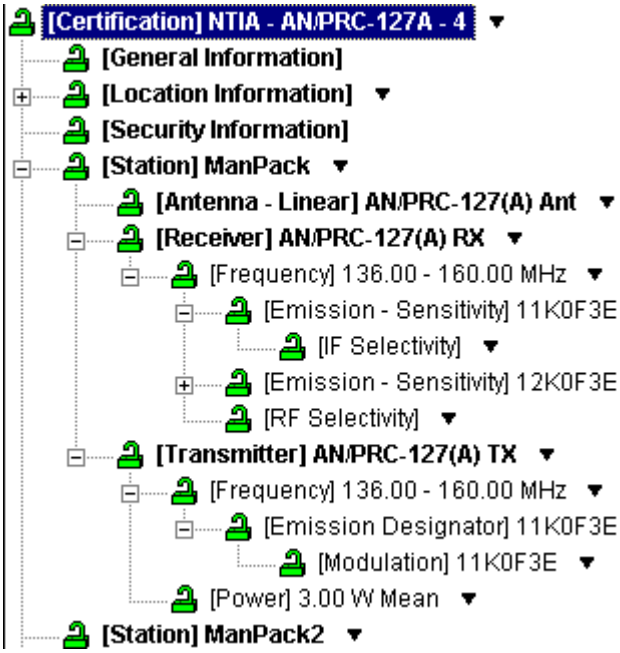
Using the Tree Outline Panel



The title bar of the screen gives the overall classification of the entire database, indicates that the Tree View is the currently active window, and the type and name of the record currently open in the Tree View. The lower right-hand corner gives the type and ID of the record and its classification.

The Tree View has two main panels -- the tree on the left and the data entry panel on the right. The tree panel on the left displays the parts of the record in a tree-like outline (hence the name Tree View). Each node has a type in square brackets and (for some nodes) a name. For example, the ManPac Station in the screen above is displayed as **[Station] ManPac**.

Click the plus icon ⊞ next to a node or double-click a node to expand the node and show its sub-parts. For example, clicking the plus icon next to a Station, displays the equipments (Transmitters, Receivers, and Antennas) for that Station.



Click the minus icon ⊟ or double-click a node to collapse an expanded node.

Hold down the **Shift** key and single click the node name to fully expand a node and the part of the tree below it.

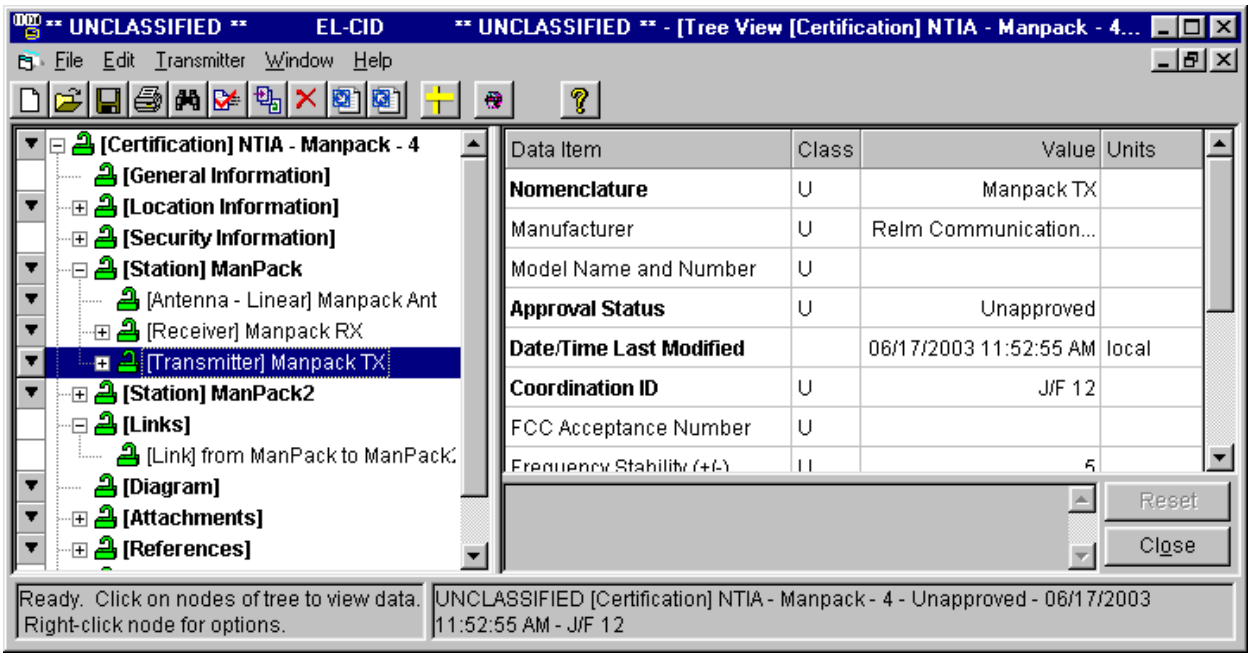
Tip: Shift-click the **[Certification]** node to expand the entire tree.

The padlock icons next to each node indicate whether the data is part of an approved or unapproved record and also indicate if the data is shared by more than one Certification record. If data is part of an approved record, you may not modify it unless you are a Certifier. Modifying data that is used in more than one Certification record modifies it in <u>all</u> those Certification records. The possible icons are:

- The node is part of an unapproved record and therefore, a non-Certifier may modify the item. The item is not used in more than one Certification.
- The node is part of an unapproved record and therefore, a non-Certifier may modify the item. The item is used in 2 or more Certification records. Modifying the data will modify it in <u>all</u> Certifications that share the item. (To find out which other Certifications use the record, see Querying Using Certifications.)
- The node is part of an approved record and therefore, a non-Certifier may <u>not</u> modify it. The item is not used in more than one Certification.
- The node is part of an approved record and therefore, a non_Certifier may not modify it. The item is used in 2 or more Certification records. (To find out which other Certifications use the record, see Querying Using Certifications.)

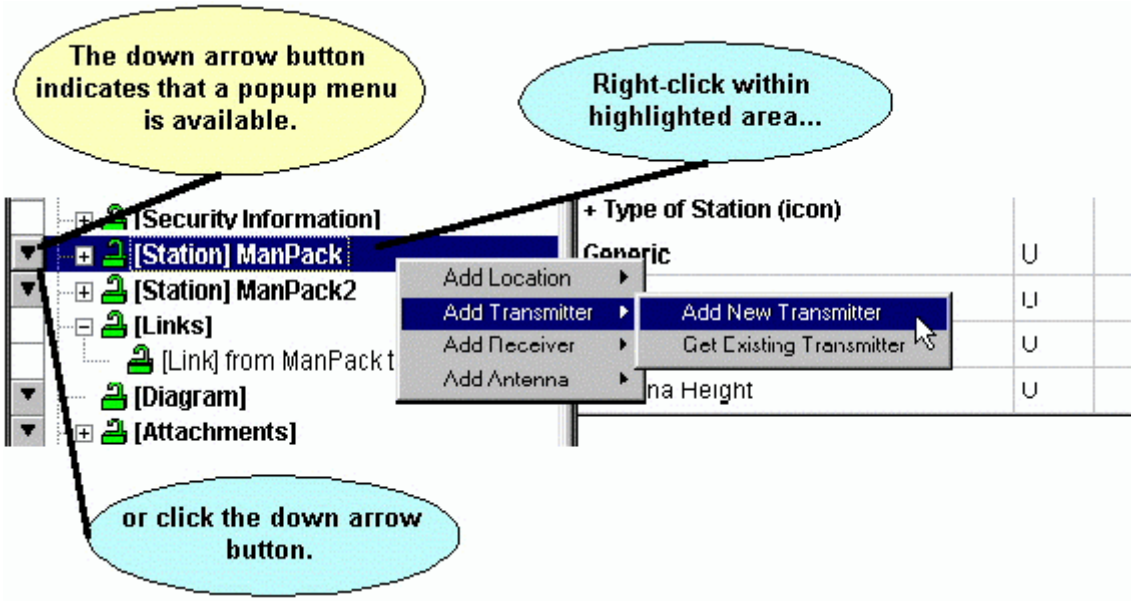
Note: The nodes of an equipment or Location will have a red padlock if it is used in <u>any</u> approved Certifications.

When you single-click on a node of the tree, the right-hand panel displays all the data item fields for that node. For example, when you click a **[Transmitter]** node, the right-hand panel displays the data items for that transmitter.



You enter data in the right-hand panel, which will be explained below.

Some nodes have a down arrow button  to their left. When you see this, you can click this button, or right-click on the node to pop up a menu. Depending upon the node type, you can add sub-parts to the node, or delete the node using this popup menu. For example, when right-clicking on a **[Station]** node, the following menu pops up.



You can also access node menus by clicking the node once to select it. The main menu will change to add a choice corresponding to the node clicked. For example, when you click on a **[Station]** node, a **Station** choice item appears in the main menu. Click the menu choice to obtain the same menu you would get by right-clicking on the node.

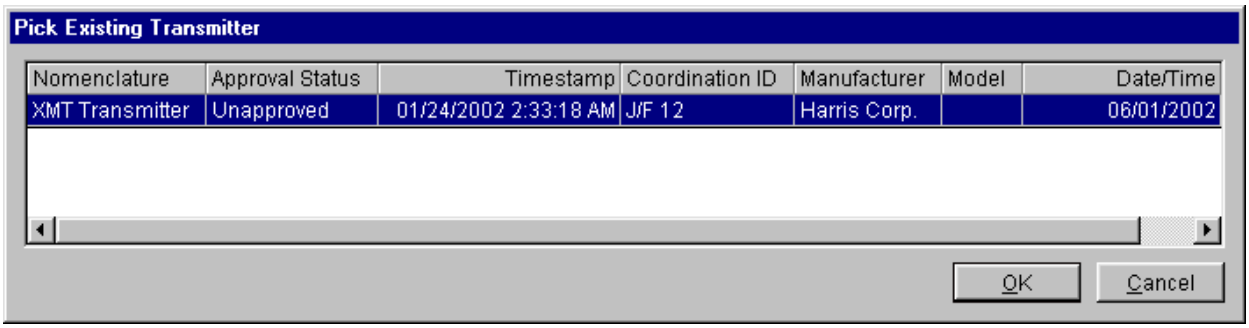
Note: When right-clicking on a node to pop up a menu, you must click on the node name; not the plus or minus icons.

Tip: To add stations or links in the Certification, click the **[Diagram]** node and use the Line Diagram.

Depending on the option you choose in a node menu, additional screens may appear. For example, when choosing **Add New Transmitter**, the **Add Nomenclature** screen appears.

Type in a nomenclature for the new transmitter and click **OK**, or click **Cancel** to abandon adding the new transmitter. If the nomenclature you've entered already exists in the database, you will receive an error message. In this case, type in a different nomenclature.

When choosing the **Get Existing Transmitter** option, the **Pick Existing Transmitter** screen appears.

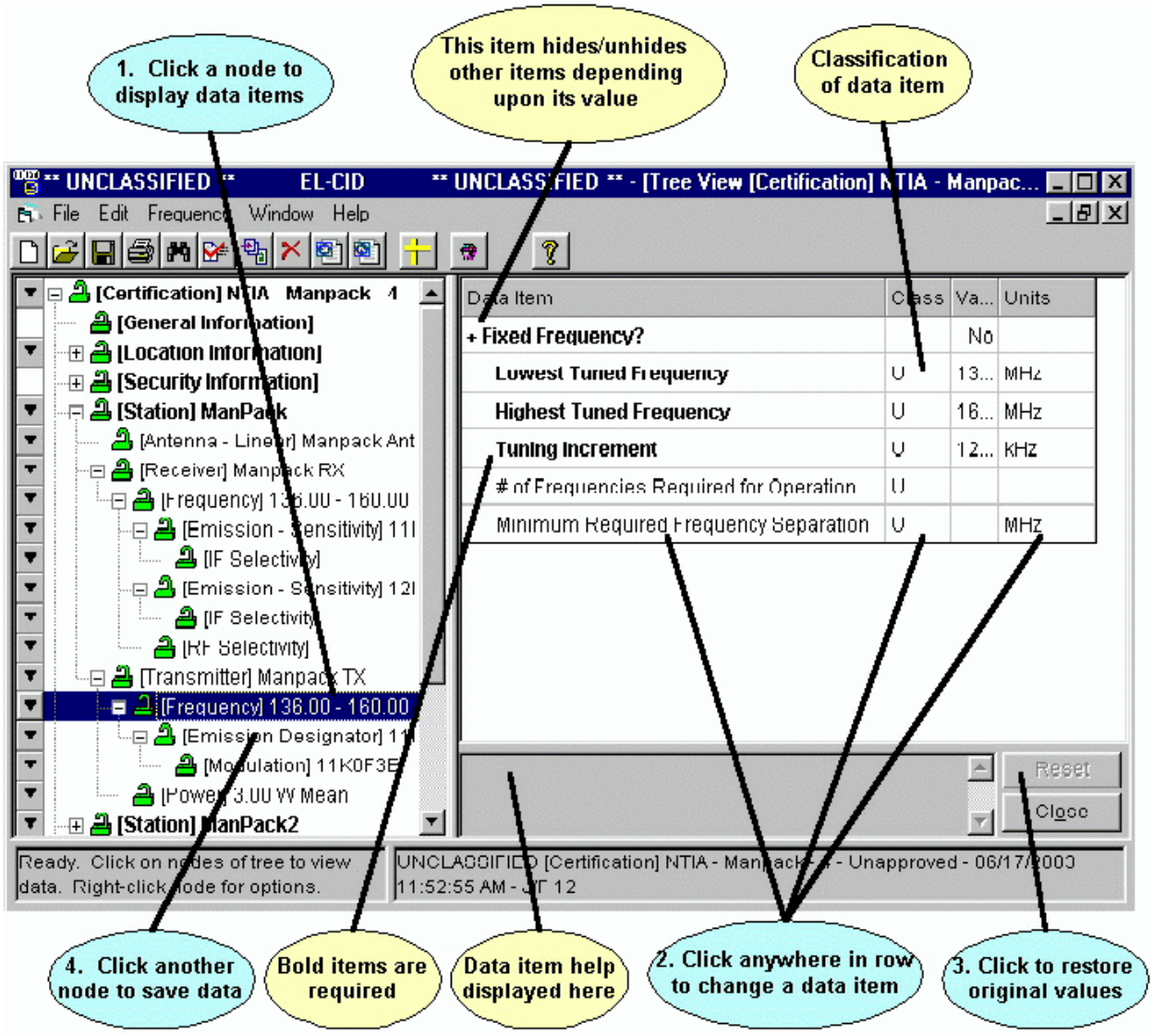


Click on the desired transmitter to highlight it, and click **OK**.

Note: A transmitter may only be added to a Station once. The **Pick Existing Transmitter** screen will not display any transmitters that already exist at the Station.

Using the Data Entry Panel

When you single-click on a node in the tree, the right-hand panel displays all the data items for that node in a grid, one row per data item. For example, when clicking on a **[Frequency]** node for a transmitter, the frequency data items appear.



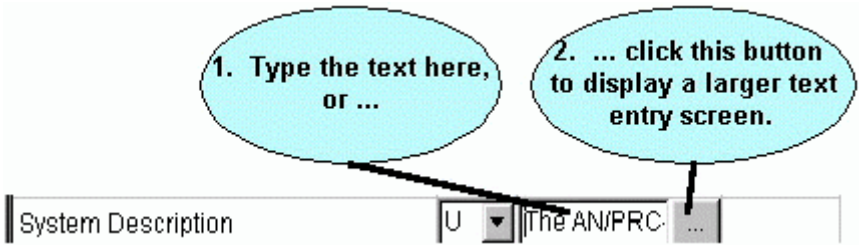
Each data item has a label, which appears in the **Data Item** column, a classification, which appears in the **Class** column, and a **Value**, which is the data you enter. Some data items also have **Units**, which is explained in more detail below. Not all data items have a classification.

Bolded data items are required. You may not leave the node until something has been entered for all the bolded data items. A plus sign **+** to the left of a data item indicates that other data items will appear or disappear, depending upon the value of the data item. For example, changing the frequency from a **Fixed Frequency** of **No** to **Yes**, will hide most of the frequency data items, leaving only the **Frequency** data item.

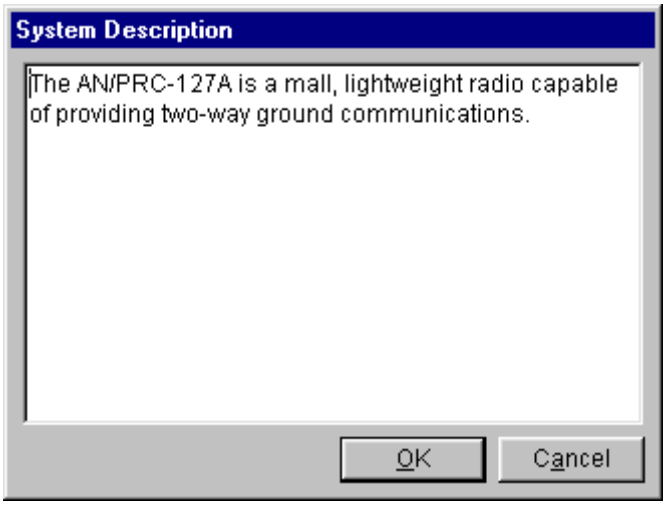
When you click anywhere in the row of a data item, the program responds by displaying a control for entry of that data item's value. The type of control depends on the field. There are seven types of controls:

- Edit box. Used for entry of textual items. You type the desired value into the edit box.

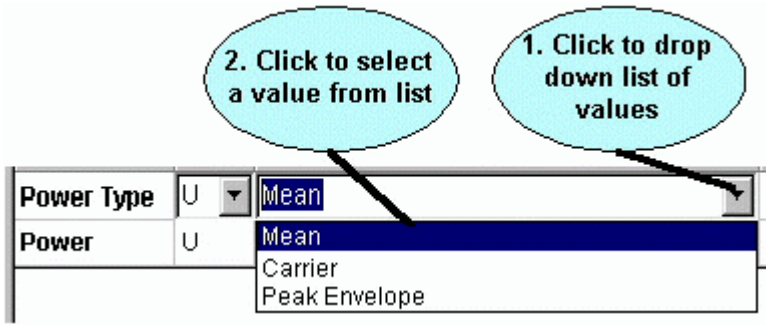
- Memo box. Used for entry of longer textual items.



You can type the desired value into the edit box, or click the button to display a larger dialog for editing/viewing the complete text.



- Pick list. Used for selecting values from a fixed pick list of values.

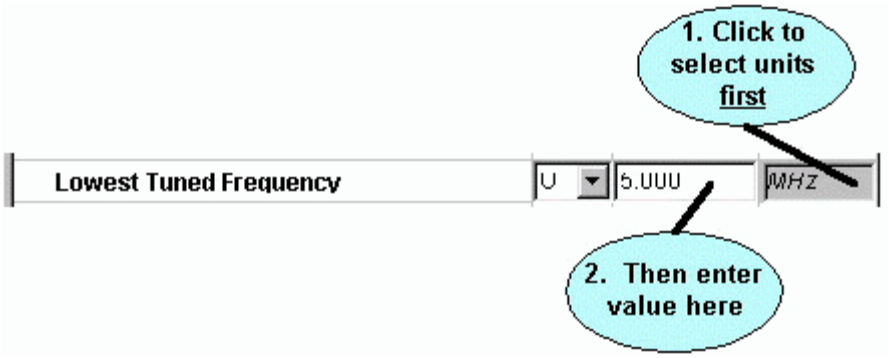


Click the down arrow  to the right of the control to drop down a list of values from which to pick. Click on the desired value to select it. Notice that you must pick one of the pre-defined values from the pick list; you are not allowed to create your own.

- Database pick list. Used for selecting values from a table in the database.

Click the browse button ... to display a screen of values. Highlight the desired value and click **OK**. In some cases, you may add new values to the list by clicking the **New** button, entering a new value, then clicking **Save**.

- Numeric with units. Used for entering numeric quantities that have associated units, such as frequency, gain, angles, etc.



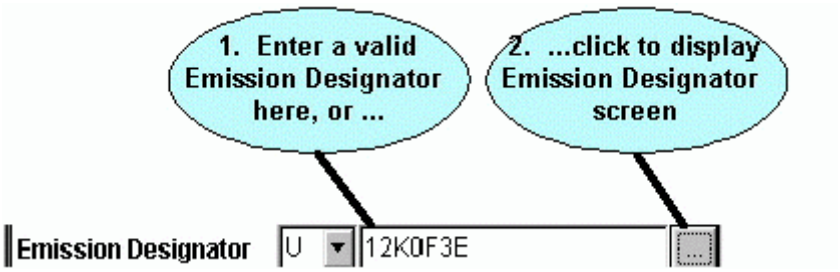
Click the units selector at the right to drop down a list of available units. Click on the desired units. Next, click in the value box and type in the value for the data item in those units. When a value for a data item already exists, you can select different units. The value is converted from the old units and displayed in the new units. The default units can be controlled from the Preferred Settings screen.

Tip: When entering a new data item, select the units first, then type in the value. If you type the value first, then select different units, the program will convert the value you entered into the new units.

Tip: When entering frequencies, you can use the standard MCEB format as a shortcut to entering the value and units. For example, entering K50, will enter a value of 50 and select kilohertz, regardless of the current units selected. Use a T for terahertz, G for gigahertz, M for megahertz, K for kilohertz, or H for hertz. The units may precede or follow the number. K50 and 50K are both valid.

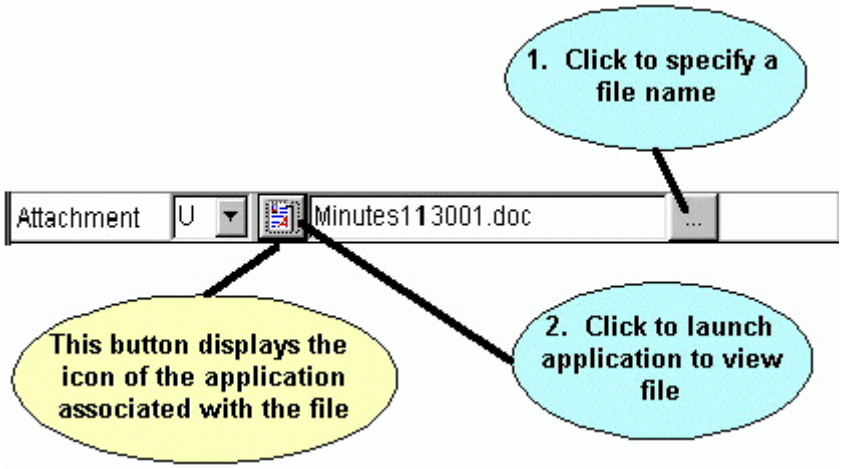
Tip: You can use scientific notation for most numeric quantities. For example, to enter a frequency of 12000, you would enter 12E3.

- Emission designator. Used for specifying a 7-character Emission Designator.



When you click the button, the **Emission Designator** screen appears.

- Attachment. Used to specify a file to be attached to a Certification record.



Important: When a file is attached to a Certification, a copy of the file is placed in the Attachments subfolder and the copy is marked read-only. You should never modify a file once it has been attached to a Certification. If modifications are necessary, delete the attachment and re-attach it.

When entering values, an invalid value is displayed in red. You must enter a valid value for the data to be accepted. If you leave the data item while it is red, the previous value is automatically restored.

Some data item fields are read-only. You may not alter these items. In this case, when you click on the item, the value will be grayed.

At the bottom of the data entry panel is a gray box that displays help for many of the data items. When you click on a data item, an explanation of the data item, if it is available, is displayed here.

To determine where a data item appears in the entire tree, use the Data Item Finder on the **Help** menu.

Tip: Adobe Portable Document Format (PDF) files are often attached to EL-CID records. In order to view these attachments, you must have a PDF reader program. A copy of Adobe Acrobat Reader is available on the EL-CID install CD in folder "Adobe Acrobat Reader" or can be downloaded from the Adobe website.

Changing the Classification of Data Items and Certifications

EL-CID handles data up to the Secret level of classification.

Most data items have a classification in the **Class** column. Click the down arrow to the right of the classification and select the desired new classification.

Note: If an output would be considered classified when several items are output together, then all of the individual data items should be marked at that classification. For example, if Nomenclature and Frequency are considered to be Confidential when appearing together, then both Nomenclature and Frequency should be marked Confidential.

Nodes in the tree are colored to help you locate classified data items as follows:

- White - Unclassified

  Yellow - Confidential
- Pink - Secret

When you change the classification of any data item, the overall classification of the record is re-calculated and upgraded or downgraded if necessary. The overall classification of the record is displayed in the lower right-hand corner of the Tree View screen. In addition, the highest classification of all the data

in the database is displayed in the title bar.

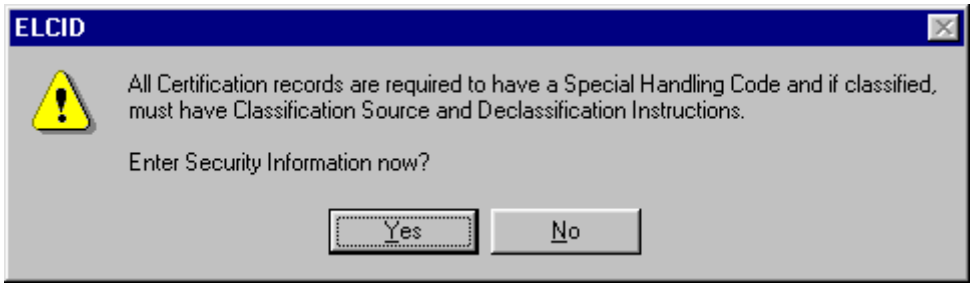
All Certification records are required to have a Special Handling Code. When you create a new Certification, the record is unclassified and the Special Handling Code defaults to "A", which means unlimited distribution. If a record becomes classified, the "A" code is deleted and you must specify a new Special Handling Code. In addition, all classified records are required to have a Classification Source and Declassification Instructions. Secret records may also have Downgrading Instructions.

To edit the security information of a Certification, click the **[Security Information]** node in the tree. The **Security Information** screen appears. See Security Information for more information on entering security information.

Note: Only Certifications have Security Information. Transmitters, Receiver, Antennas, Locations, and other record types do not have a Security Information screen, although you can specify the security of individual data items, just as for Certifications. When working with these types of records, the program automatically maintains the highest classification of all the data items in the record.

Note: Changing the classification of data items in equipments and Locations will affect the overall classification of all Certifications that use that equipment or Location. If an equipment or Location is used in more than one Certification, it will have a double padlock icon ( ) next to it.

Note: When closing a Certification in the Tree View, if you have not yet specified Security Information, the following message appears.



If you are ready to enter the security information, click **Yes**, then click the **[Security Information]** node in the tree. If you are not yet ready to enter the security information, you may click **No**, however, the program will display the message above each time you close the Certification in the Tree View until you have entered the information, or the requirement for security information is gone.

Saving Data

In general, you don't need to worry about saving data because it is saved is soon as you click on any node in the tree. You can also force all data to be saved by clicking **File** on the main menu, then **Save**. Data is also automatically saved when you click the **Close** button.

As you enter new data items or change existing ones, the value is displayed in blue, indicating that you have changed that item. To restore the original value, click the **Reset** button.

Note: Once you click on a node in the tree, data is saved and the **Reset** button is disabled, indicating that you cannot restore the original values.

Copy and Paste Tree Nodes

EL-CID offers a limited capability to copy and paste nodes of the tree in the Tree View using the Windows clipboard. This can save time when entering transmitters with similar variations of frequency, emission, power, or modulation, or when entering receivers with similar variations of emission, RF Selectivity, or IF Selectivity. The following nodes may be copied and pasted:

[Frequency]
[Emission Designator]
[Modulation]
[Harmonic]
[Power]
[Frequency] (of a receiver)
[Emission - Sensitiviy]
[IF Selectivity]
[RF Selectivity]

To copy a node from the tree to the Windows clipboard, click the node in the tree, hold down the **<Ctrl>** key and press **C**, or click **Edit** on the main menu, then click **Copy**. If the node is not allowed to be copied, an audible bell will sound.

To paste a node from the Windows clipboard to the tree, click on the node in the tree where you want to paste, hold down the **<Ctrl>** key and press **V**, or click **Edit** on the main menu, then click **Paste**. If the node in the clipboard cannot be pasted at the chosen location, or there is no node currently in the clipboard, an audible bell will sound, otherwise a new node will appear in the tree containing the data from the clipboard.

When pasting tree nodes, EL-CID automatically determines where to insert the pasted node(s) based on the node you clicked on. For example, when pasting a **[Power]** node, you may click the **[Transmitter]** node or you may click another **[Power]** node if any exist. The pasted **[Power]** node will appear underneath the **[Transmitter]** node at the same level as other **[Power]** nodes (if any).

When copying tree nodes, the selected node and all subnodes indented underneath it are copied. When pasting, the node and all its subnodes are pasted. For example, when copying a **[Frequency]** node, the **[Frequency]** node and all **[Emission]**, **[Modulation]**, **[Power]**, and **[Harmonic]** nodes indented underneath the frequency are copied as well.

Tip: Suppose you are entering data for a transmitter frequency with multiple emissions having similar modulation data. Since you cannot modify an **[Emission Designator]** node once it has been created, first create each of the emissions in the normal way. Enter the modulation data for the first emission. Then copy the **[Modulation]** node from the first emission to each of the other emissions. Modify each of the pasted modulations as needed.

Note: You may not copy and paste **[Transmitter]**, **[Receiver]**, **[Antenna]**, or **[Location]** nodes (or any other node not given in the list above). However, you can easily achieve the same result for equipments and locations by right-clicking on the appropriate **[Station]** node and choosing **Add**, then **Get Existing** in the popup menu that appears.

Note: Only one node (and its subnodes) may be kept in the clipboard at any one time.

Tip: You may copy nodes between Certification records. Once a node has been copied to the Windows clipboard, it stays in the clipboard until you exit EL-CID. Therefore, it may be pasted into any Certification record where pasting is allowed.

Entering ITU Satellite Data

If you are working on a space system with new satellites, you may be required to submit notification to the Radiocommunication Bureau (BR) using the ITU software (Spacecap). See Section 3.3 of the NTIA Manual. If you have not yet installed the ITU software, exit EL-CID and install the ITU software following the distributor's instructions, then set the path to the ITU program in the EL-CID preferences. See System Preferences for how to do that. (The ITU software is not distributed with EL-CID).

To enter ITU satellite data, click the ITU button  in the tool bar at the top of the screen. This will start the ITU program (Spacecap). Create a new ITU database, remembering the path to the MDB file you create. When finished entering the satellite data in the ITU program, exit the ITU program. Now in the EL-CID Tree View, right-click on the **[Attachments]** node, choose **Add Attachment** in the popup menu that appears. Click on **Attachment** in the data entry panel on the right, then click the Browse button  that appears. Navigate to the MDB file you created with the ITU program and click **Open**. The MDB file will be attached to the Certification.

To view ITU data that has been attached to a Certification, right-click the **[Attachment]** node in the Tree View and choose **View** in the popup menu that appears. The attached MDB file will be copied to the Data subfolder within the ITU program folder (the default ITU program folder is C:\BR_SOFT\Spacecap). When the ITU program starts, click **File** in the main menu, then click **Open**. Navigate to your MDB file in the \Data subfolder and click **Open**.

Note: When attaching a file to a Certification, the file is copied to the Attachments folder within the EL-CID Program Folder and marked read-only. If you modify the ITU data, you must delete the attachment and re-attach the ITU MDB file. Never attempt to modify the files in the Attachments folder within the EL-CID Program Folder. Never attempt to open the MDB files in the Attachments folder using the ITU program.

Adding Equipments at Stations

To complete a Certification, you must add equipment data to the Stations. Each transmitting Station must have at least one transmitter and at least one antenna. Each receiving Station that is not generic must have at least one receiver and at least one antenna. Each transmitter must have at least one frequency and emission, and should have at least one power.

When you add equipments to a Certification, you may either create new equipment records or you may add existing equipment records from the EL-CID database.

To add an equipment to a station, click the **[Station]** node in the tree to select it. Right-click the same **[Station]** node and choose from the popup menu that appears.

See Creating and Editing Equipments for more information on entering equipment data.

Modifying or Deleting Equipments or Locations in a Certification

As you work on a Certification in the Tree View, you have the opportunity to modify the data items in the equipments (Transmitters, Receivers, and Antennas) and Locations used in the Certification. It is important to remember that modifying an equipment or Location affects every Certification that uses that equipment or Location. You can tell if an equipment or Location is used in more than one Certification because it will have a double padlock icon ( or ) next to it. To find out which other Certifications use the equipment or Location, see Querying Using Certifications. If you want to modify an equipment without affecting other Certifications, see Modify An Equipment Without Affecting Any Certifications.

To remove an equipment or Location from a Certification, right-click on the equipment node or Location node in the Tree View and select **Remove** in the pop-up menu that appears. When you remove an equipment or Location from a Certification in the Tree View, the equipment or Location record is not

deleted from the database; it is simply removed from the Certification. If you want to delete an equipment or Location completely from the database, see Delete an Equipment From the Database.

Note: Deleting or modify transmitter frequencies or powers will affect any **Selected Modes** you've selected in the Link Information screen. In some cases, it will be preferable to replace the equipment. See below.

Replacing an Equipment in a Certification

To replace an equipment in a Certification with a different equipment record, right-click on the equipment node in the Tree View and choose **Replace** in the popup menu that appears. See Replacing an Equipment with Another for more information.

Note: Replacing a Transmitter in a Certification can cause **Selected Modes** on the Link Information screen to be deleted from the Certification.

Tip: Suppose you are not a Certifier and you need to modify an Approved equipment that is part of an Unapproved Certification. In this case, the Certification will have a green padlock (), but the equipment will have a red padlock () indicating that you may not modify the equipment. If you are certain you need to modify the equipment, first clone the equipment by right-clicking on the equipment and choose **Clone** in the popup menu that appears. Another Tree View screen will appear containing the cloned equipment and you can modify it as desired. Click the **Close** button and the original Tree View screen containing the Certification will reappear. Now right-click on the equipment and choose **Replace** in the popup menu that appears. Choose the cloned equipment record you just created in the **Pick Existing** screen that appears. (Its Timestamp will be today.) Since the cloned equipment is automatically flagged as Unapproved, you may now modify it. See Cloning Records and Replacing an Equipment with Another for more information.

Modifying Link Information

To modify the link information in a Certification, expand the **[Links]** node (near the bottom of the tree), then click on the link you want to modify. See Link Information for more information. You can also modify link information from the Line Diagram.

Note: To create or delete links, click the **[Diagram]** node and draw new links or delete existing ones in the Line Diagram.

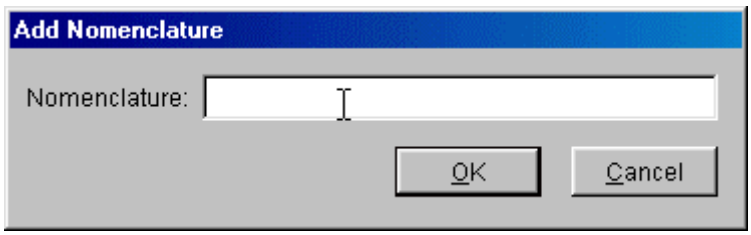
Creating and Editing Equipments

Creating New Equipment Records

There are two methods to create a new equipment record (Transmitter, Receiver, or Antenna) in EL-CID.

1. Method 1. In the Tree View screen, while editing a Certification, right-click on a **[Station]** node and choose **Add Transmitter**, **Add Receiver**, or **Add Antenna** in the menu that pops up, then choose **Add New** in the additional pop up menu. If you choose Antenna, you must also choose from **Add Aperture**, **Add Linear**, or **Add Phased Array**.
2. Method 2. Close all screens in EL-CID. Click **File** on the main menu, click **New**, then click **Transmitter**, **Receiver**, or **Antenna**. If you click Antenna, you must also choose from **Aperture**, **Linear**, or **Phased Array**.

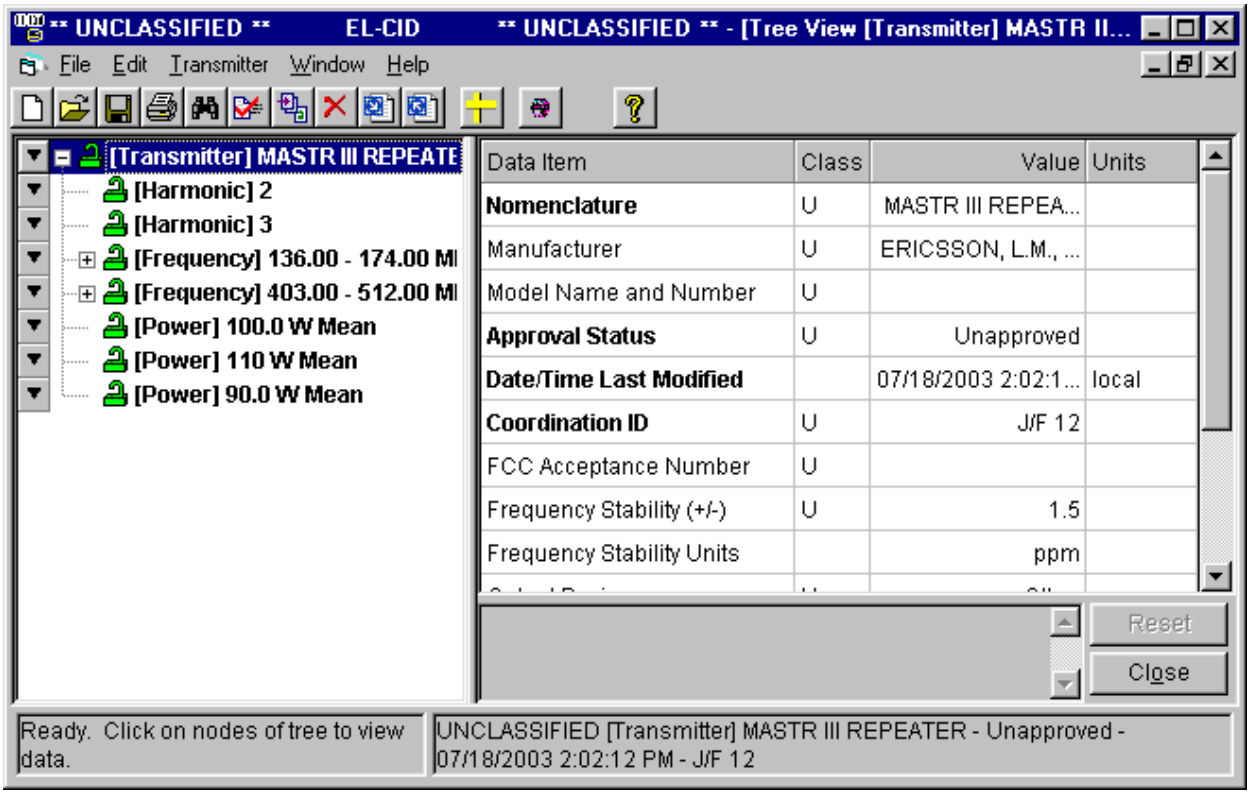
In either case, the **Add Nomenclature** screen appears.



Type in the Government-assigned alphanumeric equipment designation. If a Government nomenclature has not been assigned, enter the equipment name. Nomenclature may be up to 35 characters long and is required. Click **Cancel** to abandon creating the new equipment, or click **OK** to proceed.

If you used Method 1 above to create the new equipment record, a new node **[Transmitter]**, **[Receiver]**, or **[Antenna]** will be added to the tree in the existing **Tree View** screen.

If you used Method 2 above to create the new equipment record, a new **Tree View** screen will appear with the equipment record displayed.



This screen is the same screen as is used to edit Certification records, except that only a single equipment is shown. For instructions on operating this screen, please read topic Tree View. However, as you read, keep in mind the following exceptions:

- You do not create or edit a diagram.
- You do not specify Locations.
- You do not specify Link Information.
- You do not add Attachments or References.
- There is not a separate security classification screen.

The screen above shows a transmitter record that has already been fully created. When you first create a new record, only the first node in the tree (**[Transmitter]**, **[Receiver]**, or **[Antenna]** will appear. In the case of a transmitter, after filling in the technical parameters for the transmitter on the right side of the screen, right-click on the **[Transmitter]** node in the tree and add at least one of each of the following nodes:

- **[Frequency]**
- **[Power]**
- **[Harmonic]**

Fill in the technical parameters for each of these nodes as you add them. For each **[Frequency]**, you must also add at least one **[Emission Designator]** and for each **[Emission Designator]** you must add at least one **[Modulation]**.

In the case of a receiver, after filling in the technical parameters for the receiver on the right side of the screen, right-click on the **[Receiver]** node in the tree and add at least one **[Frequency]** node and one **[RF Selectivity]** node, filling in the technical parameters for each of these nodes as you add them. For each **[Frequency]** node, you must also add at least one **[Emission - Sensitivity]**, and for each **[Emission - Sensitivity]** you must add at least one **[IF Selectivity]**.

Entering Emission Designators

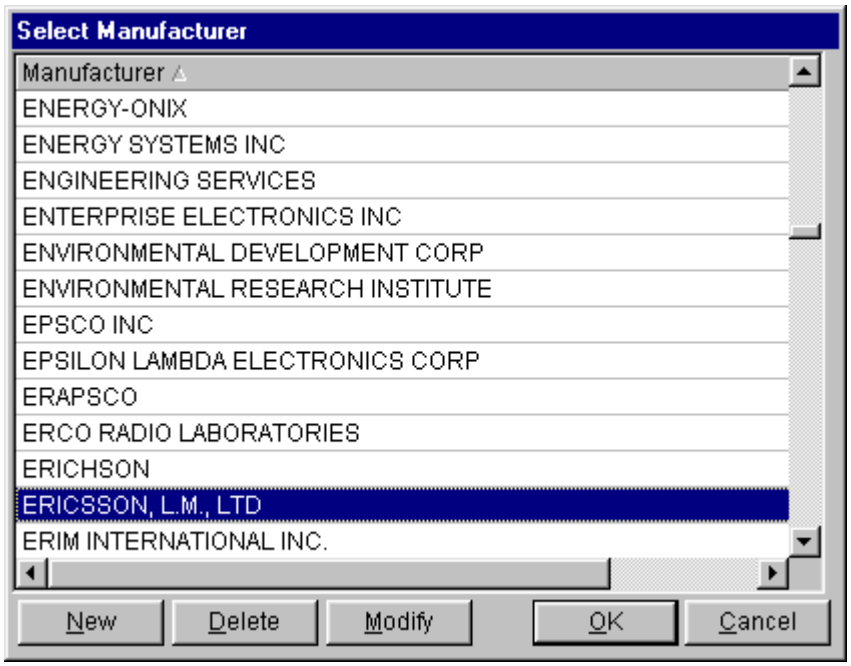
When you add an **[Emission Designator]** to a transmitter or receiver, the **Emission Designator** screen appears.

If you know the exact Emission Designator, type it into the box at the bottom of this screen and click **OK**. Otherwise, use the pick lists and boxes above to help you construct the Emission Designator.

Note: Once an **Emission Designator** has been added to a transmitter, it cannot be modified. To change an Emission Designator in a transmitter, add a new one, use the Copy and Paste capability to copy the **[Modulation]** node (if one exists) from the old to the new Emission Designator, and delete the old Emission Designator. Keep in mind that deleting an Emission Designator will also delete Selected Modes in the Link Information screen.

Manufacturer Names

One of the technical parameters required for each equipment is the name of the **Manufacturer**. (If you are logged in as a manufacturer, your company's name.) You enter this by clicking on **Manufacturer** to select it, then click the browse button [...]. The **Select Manufacturer** screen appears.



Scroll through the list to find the correct manufacturer (they are listed alphabetically), click on the manufacturer once to select it, and click **OK**. If you do not see the company's name in the list, click the **New** button, type the name of the company in the highlighted row that appears (use all capital letters), click **Save**, then click **OK**.

Note: Avoid creating new manufacturers or modifying existing ones. If the company appears in the list, but the name is slightly wrong, just use the existing name. For example, you do not need to worry that the equipment is produced by a particular division of the company. If you create or modify a manufacturer, you will be creating additional work for both you and for NTIA. (Each new manufacturer must be assigned a three-letter code by NTIA).

Strategies for Building Transmitter Records

Many transmitters offer multiple frequency, emission, and power operating modes. You should create multiple **[Frequency]**, **[Emission Designator]**, **[Power]**, and **[Modulation]** nodes to reflect the full capabilities of your transmitter, even if you do not intend to certify all the capabilities. (Someone else might want to certify the equipment using its other capabilities.)

How you organize the **[Frequency]** and **[Emission Designator]** nodes in the tree matters. For example, suppose your transmitter operates in two different frequency bands -- 100 to 200 MHz and 200 to 300 MHz -- and suppose the first band uses Emission Designator 10K50F1D, while the second band uses Emission Designator 4K50F1D. Also suppose that your transmitter offers two power modes -- 5 and 10 Watts. You would organize the tree like this

[Frequency] 100 - 200 MHz
    [Emission Designator] 10K50F1D
        [Modulation]
[Frequency] 200 - 300 MHz
    [Emission Designator] 4K50F1D
        [Modulation]
[Power] 5 W
[Power] 10 W

Suppose, however, that your radio can operate in two different emission modes over the entire 100 to 300 MHz range. In this case, your tree would look like this

[Frequency] 100 - 300 MHz
    [Emission Designator] 10K50F1D
        [Modulation]
    [Emission Designator] 4K50F1D
        [Modulation]
[Power] 5 W
[Power] 10 W

Notice that the tree in these examples implies that both powers can be used in either emission mode. This is all right. When you build a Certification Application, EL-CID will automatically permute all the combinations of frequency/emission pairs with all the powers, and you will have the opportunity to select the modes to be certified, given all the possibilities your tree implies. What you will not be able to do is make combinations that your tree does not offer. For example, given the following tree

[Frequency] 100 - 200 MHz
    [Emission Designator] 10K50F1D
        [Modulation]
[Frequency] 200 - 300 MHz
    [Emission Designator] 4K50F1D
        [Modulation]
[Power] 5 W
[Power] 10 W

you will not be able to certify the second frequency band (200 - 300 MHz) using the first emission (10K50F1D). You also will not be able to certify the second band (100 - 200 MHz) with the first emission (4K50F1D). Furthermore, you cannot break up the frequency bands you specify, therefore, you could not certify the transmitter at 5 Watts for 100 to 150 MHz and certify it at 10 Watts for 150 to 200 MHz. If that is the way your transmitter works, you should break up the frequency bands in the Transmitter record

accordingly.

Avoid overlapping frequency ranges. For example, suppose your transmitter operates with emission 10K50F1D from 100 to 250 MHz and operates with emission 4K50F1D from 200 to 300 MHz. Notice that from 200 to 250 MHz, the transmitter may use either emission. The following tree would be incorrect.

[Frequency] 100 - 250 MHz
    [Emission Designator] 10K50F1D
        [Modulation]
[Frequency] 200 - 300 MHz
    [Emission Designator] 4K50F1D
        [Modulation]
[Power] 5 W
[Power] 10 W

Instead, specify an intermediate frequency range with both emissions, like this

[Frequency] 100 - 200 MHz
    [Emission Designator] 10K50F1D
        [Modulation]
[Frequency] 200 - 250
    [Emission Designator] 10K50F1D
        [Modulation]
    [Emission Designator] 4K50F1D
        [Modulation]
[Frequency] 250 - 300 MHz
    [Emission Designator] 4K50F1D
        [Modulation]
[Power] 5 W
[Power] 10 W

Some transmitters can output a range of powers, but EL-CID does not permit you to enter a power range. NTIA is only interested in the maximum power that will be requested in the Certification Application. If your radio can output a range of powers enter the power that will be certified. If that power is less than the maximum power, also enter the maximum power of the transmitter.

Tip: If you are building a complex transmitter with many different combinations of frequency, emission, and modulation, the Tree View's Copy and Paste capability can save a lot of typing.

Strategies for Building Receivers

Each Receiver record must have at least one **[Frequency]** node and one **[RF Selectivity]** node. Each **[Frequency]** node must have at least one **[Emission - Sensitivity]**, and each **[Emission - Sensitivity]** must have at least one **[IF Selectivity]**. The way you organize these nodes in a Receiver record is less critical because it does not limit the choices you will have when selecting operating modes to be certified in an Application. However, you should still strive to create as complete and accurate picture of the receiver's full capabilities as possible because it may affect how NTIA approves the Certification Application.

If a receiver is multi-stage, NTIA is generally interested only in the narrowest IF Selectivity, which almost universally corresponds to the last stage, therefore, only one **[IF Selectivity]** is required for each **[Emission - Sensitivity]**, but you may enter more if you wish.

Strategies for Building Antennas

Antennas do not have a tree structure beyond the top-level **[Antenna]** node.

Finishing

When you have completed creating an equipment record, click the **Close** button to close the **Tree View** screen.

Opening Existing Equipment Records

There are four methods for opening an existing equipment record for display or edit.

1. With all other EL-CID screens closed, click **File** on the main menu. Click **Open**, then click either **Transmitter**, **Receiver**, or **Antenna**. The **Pick Existing** screen appears. Choose the equipment record you desire in the list and click **OK**.
2. Open an existing Certification record that you already know contains the equipment.
3. Perform a query on the type of equipment you desire -- **Transmitter**, **Receiver**, or **Antenna**. In the Query Results screen, right-click on any single equipment and choose **Edit in Tree View** in the menu that pops up.
4. Perform a query on Certifications that contain the desired equipment. In the Query Results screen, right-click on any single Certification and choose **Edit in Tree View** in the menu that pops up.

In all three cases, the Tree View screen appears with the record. Proceed as described above.

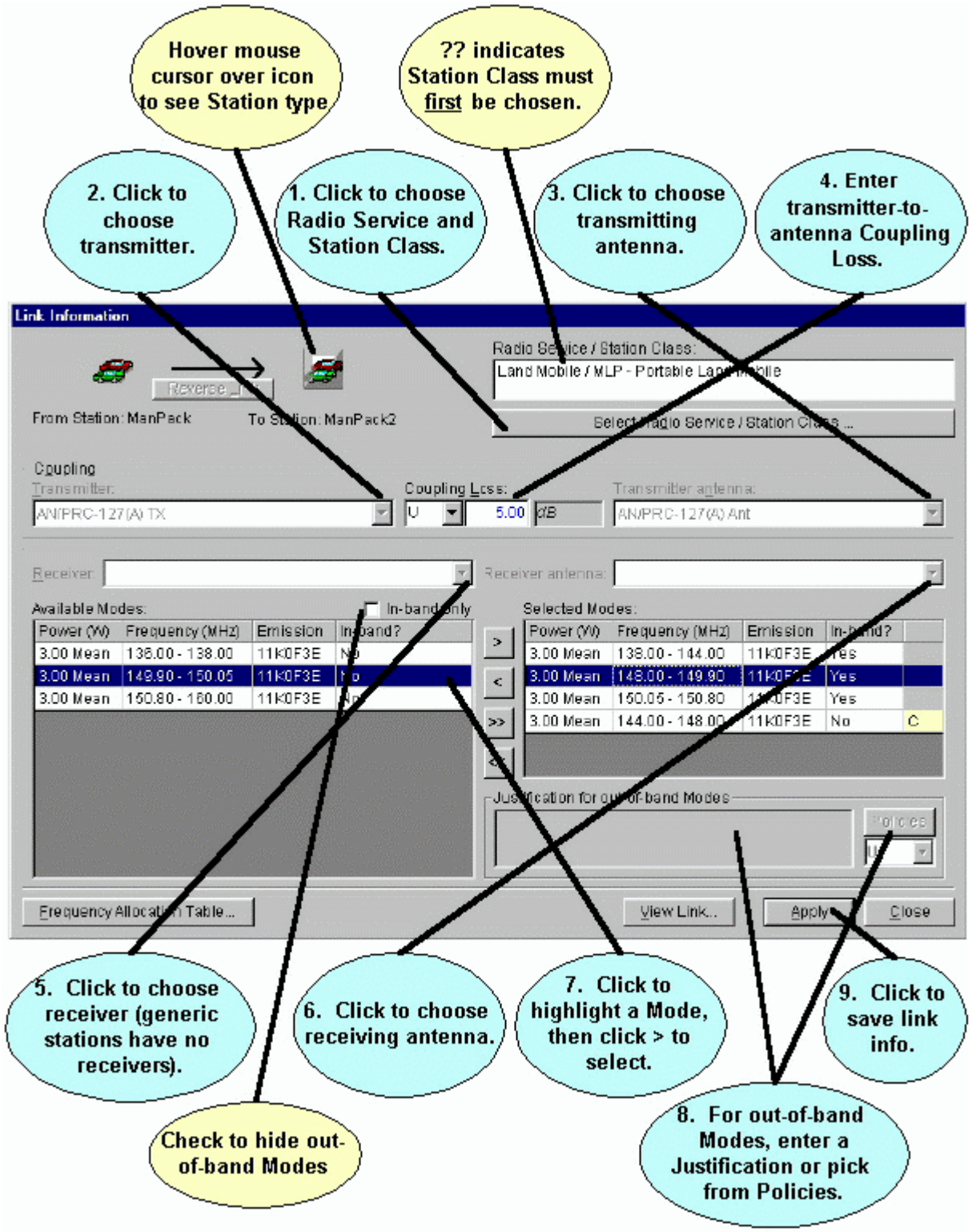
Note: If the equipment record is Approved and you are not logged in as a Certifier, you will not be able to modify the equipment. See Overview of the Software for more information.

Link Information

The **Link Information** screen is used to select the combinations of transmitters, transmitting antennas, receivers, and receiving antennas to be used in a link between two stations. It is also used to select the frequencies, powers, and emissions that will be used in each equipment combination. For each frequency range that does not match the pre-defined Frequency Allocation Tables, a justification for out-of-band is required.

There are two ways to display the **Link Information** screen.

1. From the Line Diagram, right-click on a link near the receiving end and click **Edit** in the popup menu that appears,
2. or, in the Tree View, expand the **[Links]** node, then single-click on the link you want to edit.



There are 9 steps to entering link information:

1. Choose Radio Service and Stations Class(es). If **??** appears in the **Radio Service/Station Class** list, you must choose at least one Radio Service and Station Class before proceeding. Other controls on the screen will be disabled until you've done this. Click the **Select Radio Service/Station Class** button. The **Select Radio Service/Station Class** screen appears, which

is described in more detail in Radio Service and Station Class.

2. Choose a transmitter. If there is only one transmitter at the transmitting station of the link, the **Transmitter** box will be grayed. Otherwise, click the down arrow button, and select a transmitter from the list that drops down.
3. Choose a transmitting antenna. If there is only one antenna at the transmitting station of the link, the **Transmitter Antenna** box will be grayed. Otherwise, click the down arrow button, and select a transmitting antenna from the list that drops down.
4. Enter Coupling Loss. Choose units for the **Coupling Loss** by clicking the units selector, then type in the value for the **Coupling Loss** between the transmitter and the transmitting antenna you have chosen. If you enter a Coupling Loss, the program will compute the Effective Isotropic Radiated Power (**EIRP**) on the **View Link** screen.
5. Choose a receiver. If the receiving station is Generic, the **Receiver** box will be empty; you do not need to choose a receiver. If there is only one receiver at the receiving station, the **Receiver** box will be grayed. Otherwise, click the down arrow button, and select a receiver from the list that drops down.
6. Choose a receiving antenna. If the receiving station is Generic, the **Receiver Antenna** box is empty; you do not need to choose a receiver. If there is only one antenna at the receiving station, the **Receiver Antenna** box will be grayed. Otherwise, click the down arrow button, and select a receiving antenna from the list that drops down.
7. Select the modes you want to certify. Based on the equipments you selected in Steps 2, 3, 5, and 6, a list of all the available combinations of transmitting frequencies, powers, and emissions is displayed in the **Available Modes** box. The transmitter tuned frequencies are further broken down into in-band and out-of-band ranges according to the Frequency Allocation Tables built into EL-CID. (A frequency is out-of-band if it does not match the Frequency Allocation Table.)

   Highlight a mode by clicking it once. Click the Include button > to move the highlighted mode from the **Available Modes** box to the **Selected Modes** box. Move a mode from the Selected Modes to the Available Modes by highlighting it and clicking the Exclude button <.
8. Enter a justification for each out-of-band mode you list in the **Selected Modes** box. Type the justification in the **Justification for out-of-band Modes** box. You may also specify a justification by clicking the **Policies** button and picking from a list of pre-defined policies that pops up. (NTIA creates and periodically distributes policies.)
9. Click the **Apply** button to save all your choices. A confirmation message appears. Click **OK**. Note that clicking the **Apply** button saves your choices for the **Coupling Loss** between the chosen transmitter and its antenna, and also saves the **Selected Modes** for the combination of transmitter, transmitting antenna, receiver, and receiving antenna you have chosen on the screen. It does not alter the saved information for other combinations you may have chosen using this screen.

Important: Repeat the steps above for each combination of transmitter, transmitting antenna, receiver, and receiving antenna that you want to certify, remembering to click the **Apply** button to save the information for each combination. For example, if the transmitting station had two transmitters and three transmitting antennas, and the receiving station had one receiver and two antennas, there would be 12 possible combinations.

2 Tx **X** 3 Tx Ant **X** 1 Rx **X** 2 Rx Ant = 12

Tip: To remove an equipment combination, unhighlight all **Selected Modes** and click the **Apply** button. A message will appear warning you that you have not selected any modes. Click **OK**.

To view all the combinations of information you've entered for the link, click the **View Link** button. See Viewing Link Information for more information.

If there is a reverse link between the two stations, the **Reverse Link** button is enabled. Clicking this

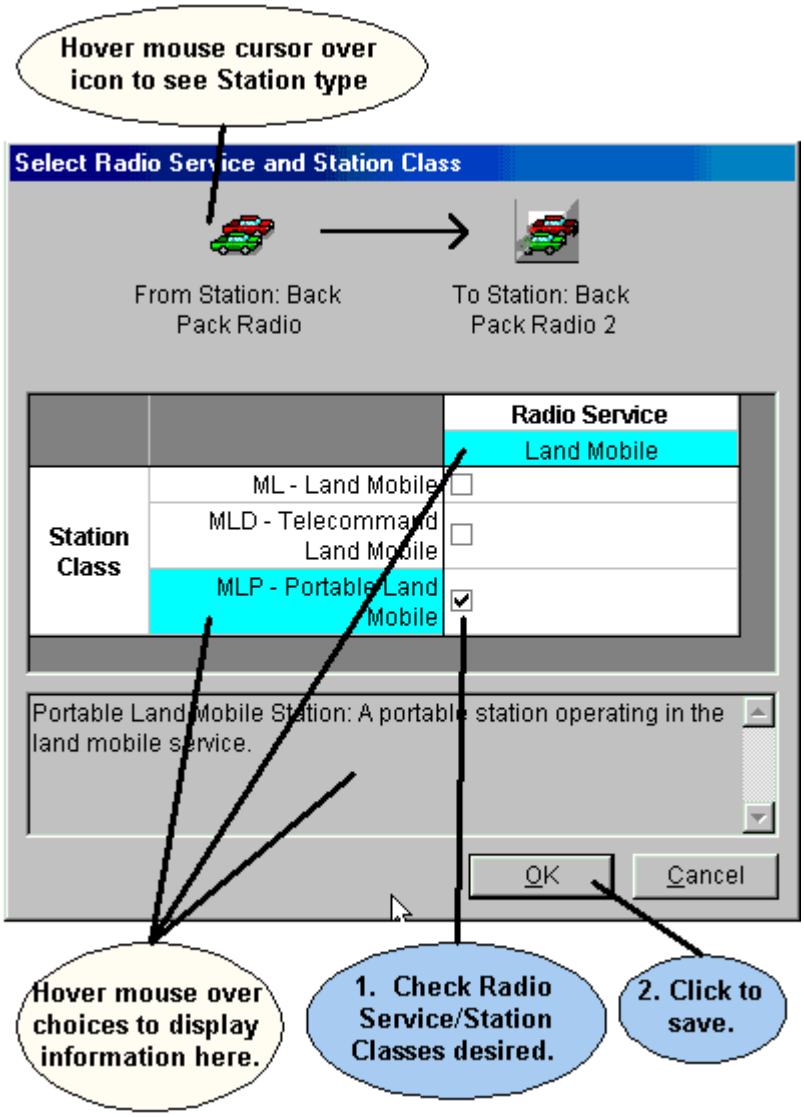
button switches the **Link Information** screen to the reverse link. You must enter combinations of equipments and modes for the reverse link in the same manner as for the forward link.

Note: In some cases, the **Radio Service** and **Station Class**(es) for the reverse link will be automatically determined by what you have chosen for the forward link.

Note: The right-most column of the **Selected Modes** grid displays the classification of the Justification for Out-of-band (if present) for each selected mode.

Radio Service and Station Class

The **Select Radio Service and Station Class** screen appears when you click the **Select Radio Service/Station Class** button on the Link Information screen.



The screen displays all the possible choices for Radio Services based on the types of the Station icons at the ends of the link. It also displays all the possible choices for Station Class based on the type of Station icon at the transmitting end of the link.

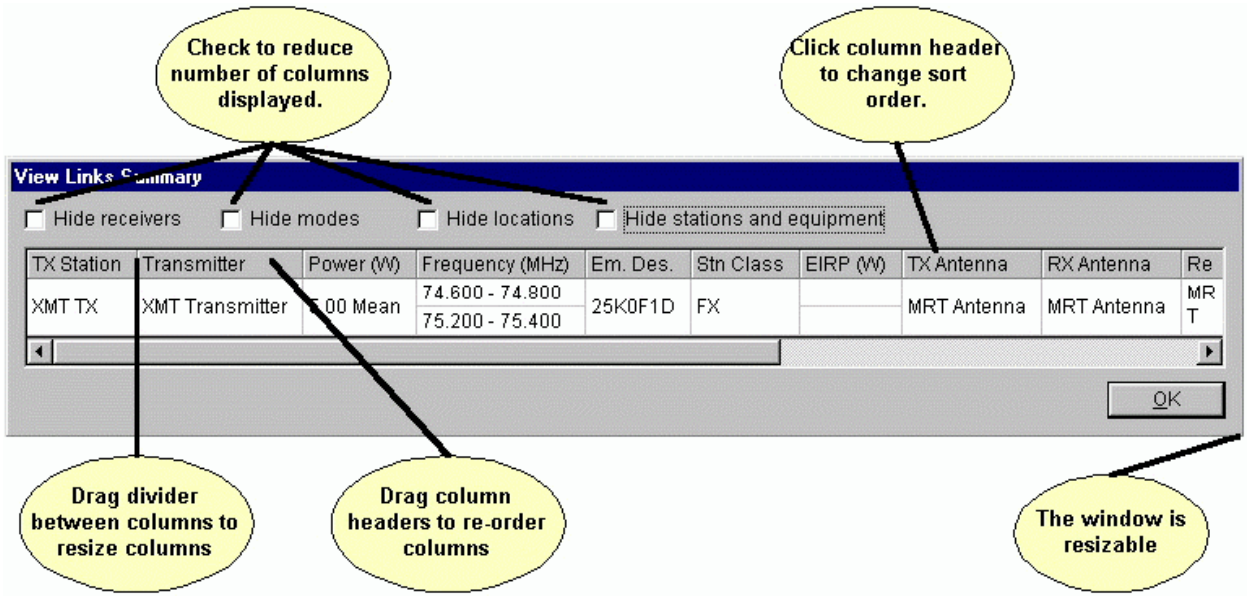
Check the boxes for the Radio Service/Station Class(es) you desire and click **OK**, or click **Cancel** to abandon your changes.

View Links Summary

The **View Links Summary** screen lists all the Link Information for a single Certification record. To display the View Links Summary screen

1. Open the Certification in the Line Diagram View.
2. On the main menu, click **Certification**, then **View Links Summary**.

After a progress window, the **View Links Summary** screen appears.



The screen lists each transmitter station, transmitter, transmitting antenna, receiver (if not generic), receiving antenna, link station class, power, frequency, Emission Designator, and Justification for out-of-band for each Selected Mode. All of this information you select and enter on the Link Information screen for each link in the Certification record.

You can copy the grid to the Windows clipboard and paste it into another document, such as an Excel spreadsheet. Click anywhere in the grid and hold down the **Ctrl** key while pressing **C**. To paste into any document, hold down the **Ctrl** key while pressing **V**.

When finished viewing the links summary, click **OK**.

This screen differs from the **View Link** screen (See Viewing Link Information), in that the latter displays information for a single link between two stations, while the **View Links Summary** screen displays the link information for the entire Certification record.

You can also display a summary of Link Information and Selected Modes by displaying the Operating Characteristics and Recommendations screen.

Specifying Locations

Before approving your Certification Application, NTIA needs to know where you will operate the equipment. You do this by adding Location records to the Certification record in the Tree View.

Locations are separate records in EL-CID, which means they may be separately displayed, created, edited, queried, imported, and exported using EL-CID capabilities. They may be used in more than one Certification record.

Where Locations Appear in a Certification

When editing a Certification record in the Tree View, you may specify Locations in two places. **[Location]** nodes may appear

1. Underneath the **[Location Information]** node. These Locations apply to the entire Certification as a whole, and/or
2. Underneath each **[Station]** node in the tree. These Locations apply to the Station they are under. In effect, these are the Locations of the Antennas used at the Station.

Where you should place Locations within a Certification depends upon the kind of system, as follows:

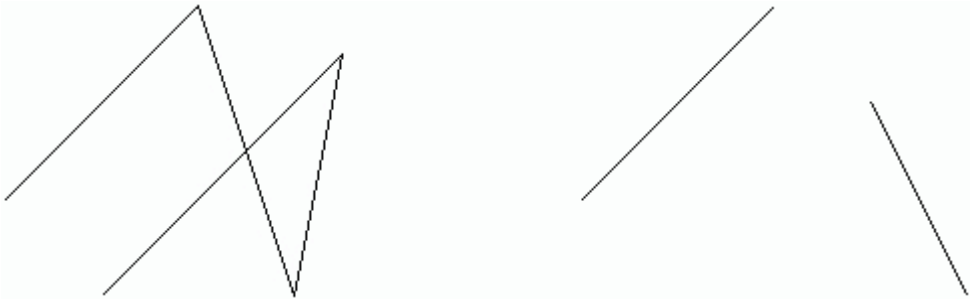
- ✍ For Trunking Systems, you are required to specify the location of each base station and repeater in the system. In addition, you must specify the location of the Trunking System as a whole. Therefore, you must add **[Location]** nodes to the **[Location Information]** node as well as the **[Station]** node of each base station or repeater in the system.
- ✍ For space systems, you specify the satellite orbital characteristics for each satellite in the system, and you specify the location of each ground station in the system. If the system has multiple satellites, all using similar equipment and emissions, you probably created a single Station icon in the Line Diagram. In this case, you would add multiple **[Location]** nodes to this single **[Station]** node. Similarly, if the system has multiple ground stations, all using similar equipment and emissions, you probably created a single Station icon in the Line Diagram to represent all the ground stations. In this case, you would add multiple **[Location]** nodes to this single **[Station]** node. Note that you do not add any **[Location]** nodes to the **[Location Information]** node.
- ✍ For all other systems, specific Station locations are generally not required. In this case, you add a **[Location]** node or nodes to the **[Location Information]** node, and do not add any to the individual Stations.

Types of Locations

There are five **Location Types** which determine the geometry (the spatial shape) of the Location record:

1. **Single Point**. A single coordinate pair (latitude and longitude) on the surface of the Earth. When approved, equipment may operate at this single point.
2. **Center Point and Radius**. These are circles on the surface of the Earth with coordinates for the center point and a distance giving the radius from the center point. When approved, equipment may operate anywhere within or on the circle. Circles may not have "holes", i.e., donuts are not possible.

3. **Line**. A series of two or more coordinate pairs which specify a line. The line may have multiple segments, but all segments must be connected. In other words, the line on the left is possible, but not the line on the right.



Lines are typically used for specialized applications, such as transmitters located along Interstate highways, or satellite ground tracks. When approved, equipment may operate anywhere along the line.

4. **Polygon**. A series of three or more coordinate pairs that specify an irregular area on the surface of the Earth. When approved, equipment may operate anywhere within or on the polygon. "Holes" are not possible, i.e. areas excluded within the polygon. Multi-part polygons are possible. For example, the record for North Carolina has two parts -- one part for the main portion of North Carolina, and a second part for the coastal barrier islands.
5. **Geo-synchronous Satellite**. A satellite whose orbit hovers above a constant longitude on the surface of the Earth. Satellite locations should only be used on satellite Stations.
6. **Non-geosynchronous Satellite**. A satellite that does orbit above a constant longitude on the surface of the Earth. The following orbital parameters must be specified: Altitude at Apogee, Altitude at Perigee, Equatorial Inclination, and Period of Orbit. Satellite locations should only be used on satellite Stations.

All Location records are required to have a **State/Country or Location Name Part 1**, and most should also have a **City or Location Name Part 2**.

Adding Locations to a Certification

To add a Location record to a Certification record

1. Open the Certification in the Tree View.
2. Expand the entire Certification tree by holding down the **Shift** key and clicking on the **[Certification]** node at the top of the tree.
3. Depending upon the kind of system you are entering as described above, click on the appropriate **[Location Information]** node or **[Station]** node to select it. Right-click on the node and choose from the popup menu that appears.

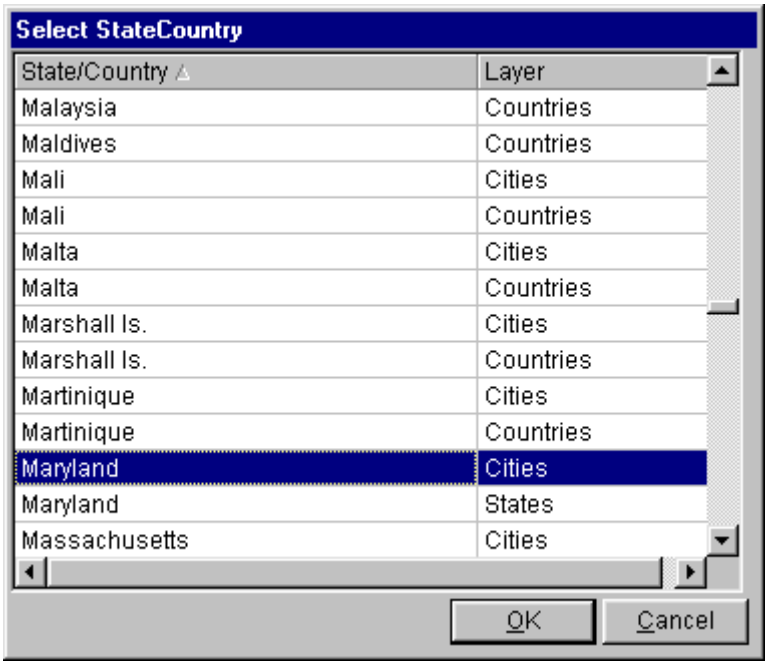
Each choice is explained in greater detail below.

Add New Location.

Choosing this option creates a brand new Location record in the database using the Tree View. You will be required to specify a **State/Country** and a **Location Type** for the location. You may also specify a City. Depending upon the Location Type, you will be required to specify additional data items as well, such as coordinates (latitude and longitude) and satellite orbital parameters. Locations created in this way do not appear on the map until you specify a **Map Layer** and draw the location's geometry on the map. See Changing Location Record Layer and Editing Location Record Geometry.

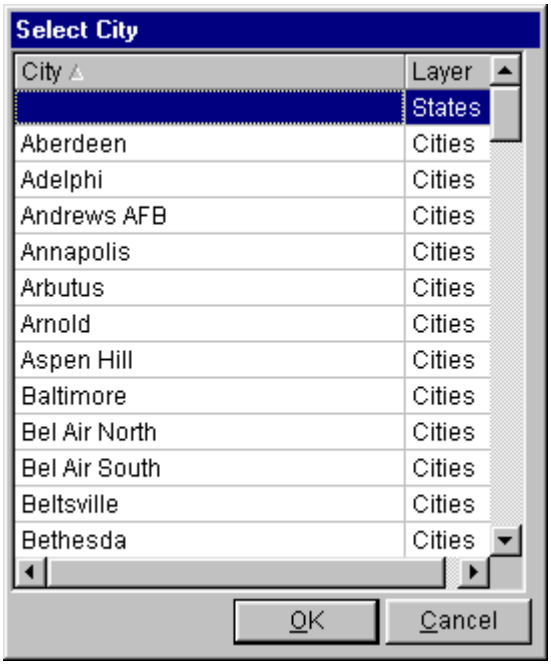
Get Existing Location.

Choosing this option selects an existing Location record from the database using a textual dialog. The **Select StateCountry** screen appears.



Tip: Most of the countries and states are listed twice because both state-wide/country-wide records and individual city records (within the state or country) exist in the database. You can tell this from the **Layer** names displayed in the second column.

Click **Cancel** to abandon adding a location, or highlight the desired StateCountry and click **OK**.

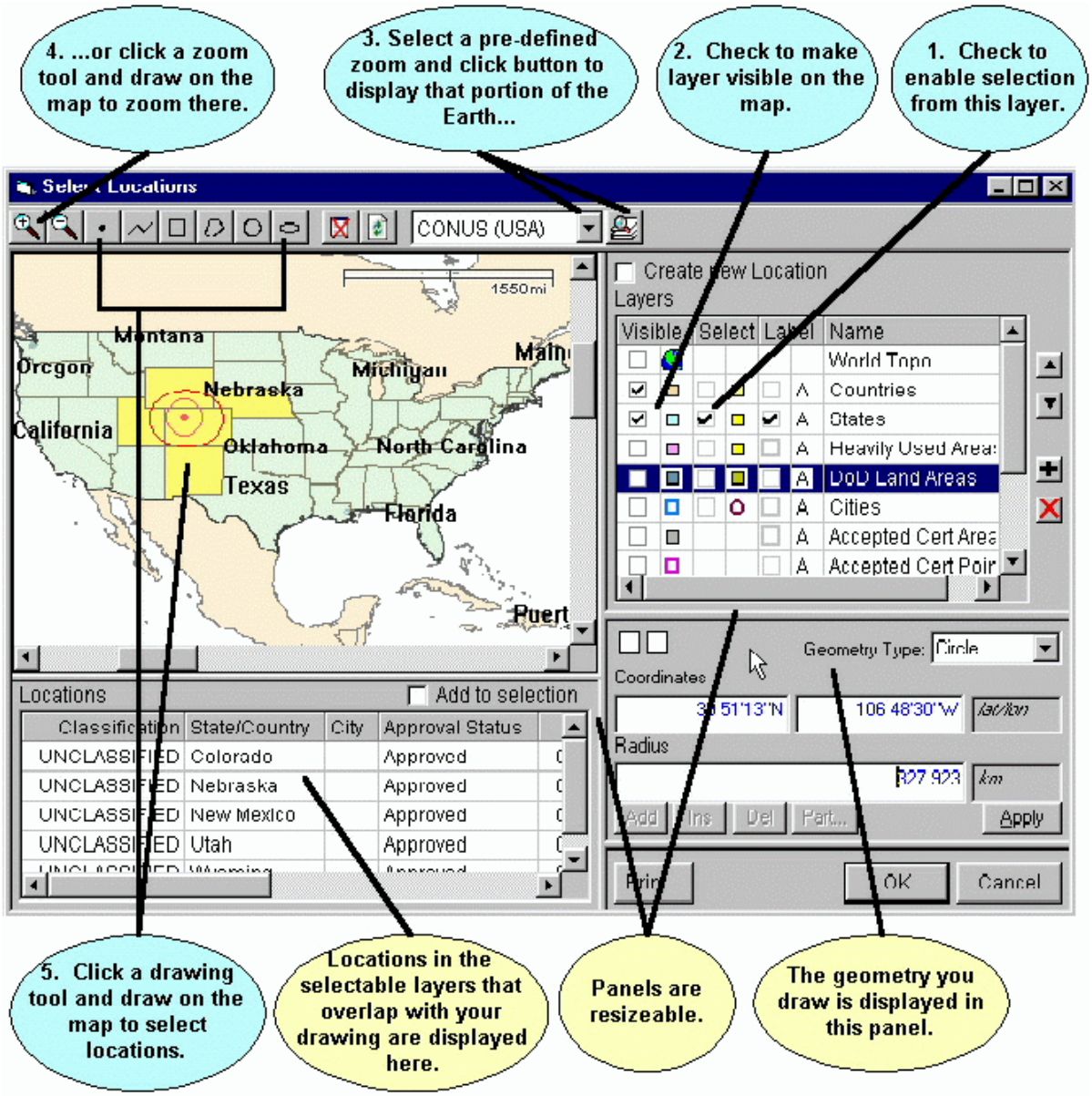


Click **Cancel** to abandon adding the location, or highlight the desired City and click **OK**. The **Tree View** screen reappears with the Location record added to the Certification record.

Note: If the City is blank, it is probably a state-wide or country-wide record (the Layer column should say either Countries or States). If you want a state-wide or country-wide location, this is the one to select.

Add From Map.

This option is generally the easiest and most accurate method to use. The **Select Locations** screen appears.



Using this screen, you will select a single Location record to be added to the Certification. You will select the Location record by

1. Choosing the layer containing the Location you want, and
2. Drawing a geometry to select Locations from that layer, and
3. Choose one of the resulting Location records.

The screen consists of 4 resizable panels -- the map itself in the upper left panel, the **Layers** legend in the upper right panel, a **Locations** grid in the lower left panel, and a **Geometry** editor in the lower right panel. To select a Location record, proceed as follows:

1. In the **Layers** legend (upper right), check the box in the **Select** column next to the layer that contains the Location you want. For example, to select from the States layer, check the box in the **Select** column to the left of **States**. To avoid confusion, uncheck the boxes next to the layers you do not want to select from.
2. Check the box in the **Visible** column next to the layer (if not already checked) to make the layer display on the map. You may also check the box in the **Label** column to cause the map to display the names of Location records.
3. In the tool bar at the top, select a pre-defined zoom area 

by clicking the Down Arrow button  , then click the Zoom button  to zoom the map display to that area.
4. You can also zoom the map display by clicking the Zoom In button  or Zoom Out button  , then draw on the map to zoom. To draw a zoom rectangle on the map, hold the mouse button down at one corner of the rectangle and drag the mouse to the other corner.
5. Click a drawing tool in the tool bar at the top and draw on the map to select Location records. The drawing tools you may use are:

   ✍  Draws a single point. Click once on the map to draw the point.

   ✍  Draws a line. Click on the map, then click a second point on the map. A line is drawn from the first to the second point. Continue clicking on the map to draw additional line segments. To finish drawing, double-click the last point.

   ✍  Draws a rectangle. Hold down the mouse button down at one corner of the rectangle. Drag the mouse to the opposite corner of the rectangle and release the mouse button.

   ✍  Draws a polygon. Click the first point of the polygon somewhere on the map. Click the second point. Click the third point. Continue clicking points of the polygon. To finish drawing, double-click the last point of the polygon. Polygons must have a minimum of three points.

   ✍  Draws a circle. Hold down the mouse button at the center of the circle. Drag the mouse in any direction to define the radius of the circle. Release the mouse button when the mouse cursor is at the desired radius. Note that, unless you are at the equator, the drawn circle is replaced by an ellipse because of the distortion introduced by projecting spherical coordinates onto a flat display. The ellipse will pass through the point at which the mouse cursor is pointing when you release the mouse button.

   ✍  Draws an ellipse. Hold down the mouse button at one edge of the ellipse. Drag the mouse in any direction to define the other edge of the ellipse. Release the mouse button when the desired elliptical shape is obtained.

   The geometry of your drawing is displayed in the **Geometry** panel at the lower right corner. You can fine-tune the drawing by manually entering coordinates here. For example, to move the center point of a circle, click the **Coordinates** box, enter a new latitude and longitude, and click **Apply**. To change the radius of a circle, click the **Radius** box, enter a new radius, and click **Apply**. You can also use the mouse to fine-tune the drawing geometry. Click the **Coordinates** box to give it focus, then click on the map. The center point of the circle changes to the point on the map where you clicked. To change the radius, first click the **Radius** box to give it focus, then click on the map. The radius of the circle changes from the center point to the point where you clicked. To aid you, the **Coordinates** and **Radius** boxes dynamically update as you move the mouse across the map. If you move the mouse off the map without clicking, they return to their original values.

   Note: To start a new drawing, you must click one of the drawing tool buttons in the tool bar.

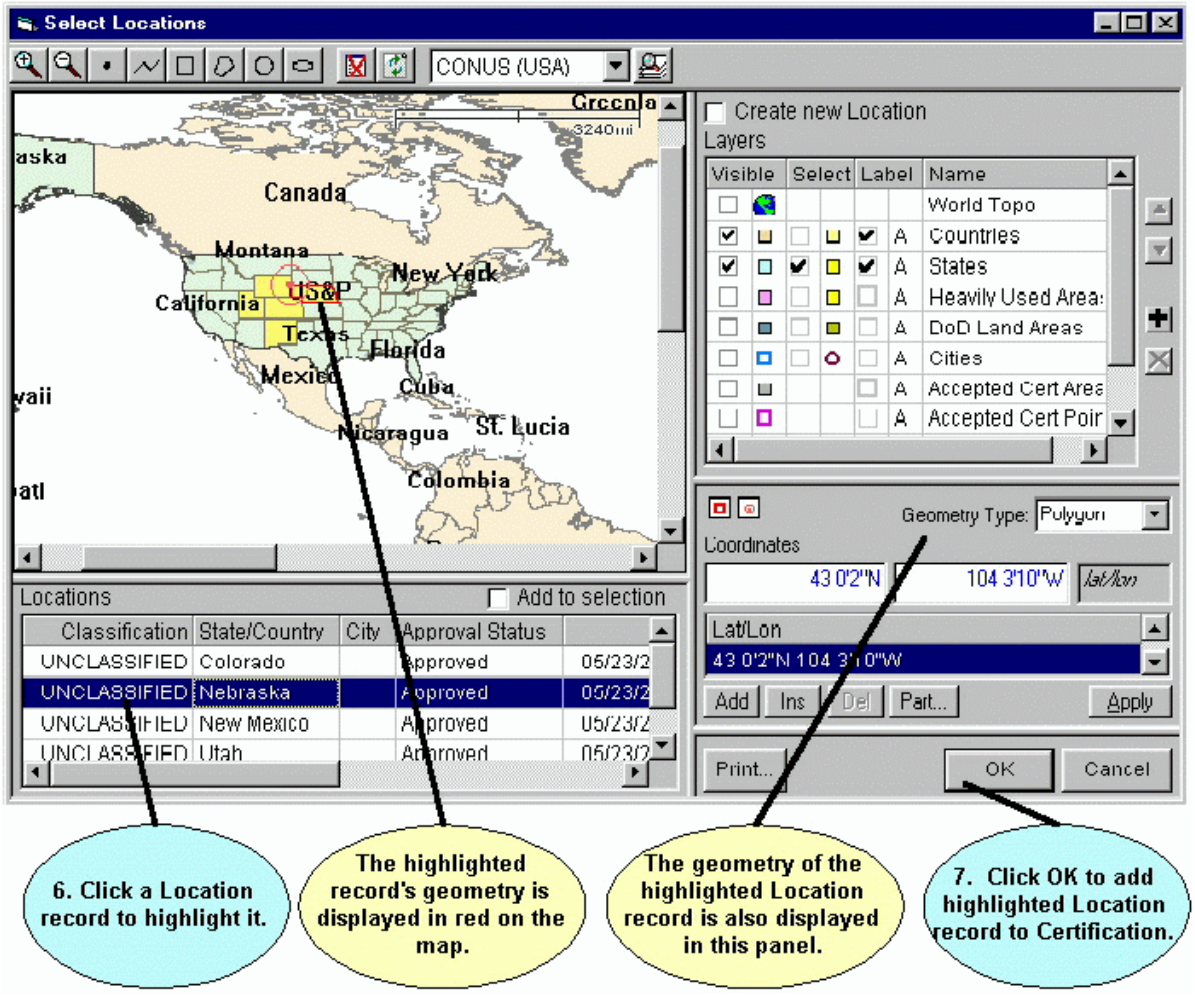
   Once you've drawn on the map, the selected Location records are shaded on the map (defaults

to yellow, but this can be customized) To be selected, Location records must overlap (or just touch) your drawing and they must be in a layer with the **Select** box checked in the **Layers** legend. The selected Location records are also listed in the Locations grid at the lower left corner of the screen.

Note: When you draw on the map in the **Select Locations** screen, you are not creating a location; you are creating a geometry which selects existing Location records that overlap the geometry.

6. Highlight a Location record by clicking the row in the **Locations** grid. The geometry of the highlighted record is displayed on the map (usually red, but this can be customized). The geometry of the highlighted Location record is also displayed in the **Geometry** editor panel at the lower right corner.

   Note: If only one Location record is displayed in the Locations grid, it is automatically highlighted.



You may clear the Locations grid by clicking the Clear Selection All button in the tool bar at the top of the screen.

You may refresh the map display at any time by clicking the Refresh button in the tool bar at the top of the screen.

7. Click **Cancel** to abandon selecting a Location record, or click **OK**. The **Select Locations** screen disappears, and the **Tree View** screen reappears with the highlighted Location record you selected added to the Certification record.

Note: Only one Location record at a time may be added to a Certification record using this method.

It is also possible to create brand new locations and to edit existing Location records on the map. See Creating Location Records and Editing Location Record Geometry for more information.

Security Information

EL-CID handles data up to the Secret level of classification.

Almost every individual data item you can enter in an EL-CID record may be classified. In the Tree View, the classification of individual data items is displayed and edited in the **Class** column. Click the down arrow to the right of the classification and select the desired new classification.

Note: Blank data items may not have a classification.

Note: If an output would be considered classified when several items are output together, then all of the individual data items should be marked at that minimum classification. For example, if Nomenclature and Frequency are considered to be Confidential when appearing together, then both Nomenclature and Frequency should be marked Confidential or higher.

Throughout the program, classified data items are colored to help you locate them as follows:

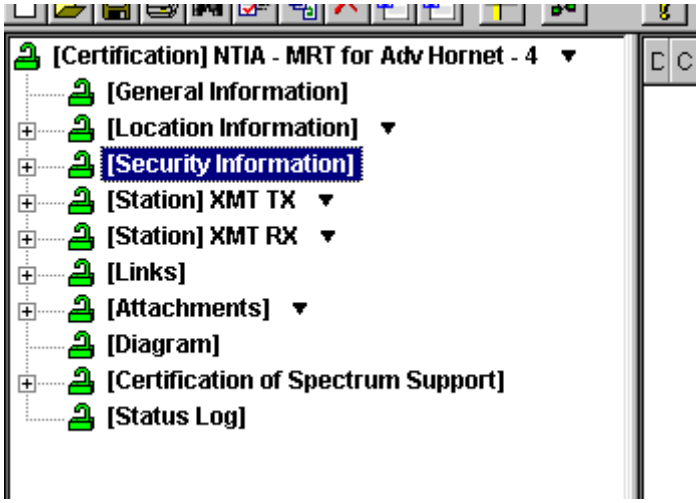
- White - Unclassified
  Yellow - Confidential
- Pink - Secret

When you change the classification of any data item; the overall classification of the record is re-calculated and upgraded or downgraded if necessary. The overall classification of the record is displayed in the lower right-hand corner of the **Tree View** screen. In addition, the highest classification of all the data in the database is displayed in the title bar.

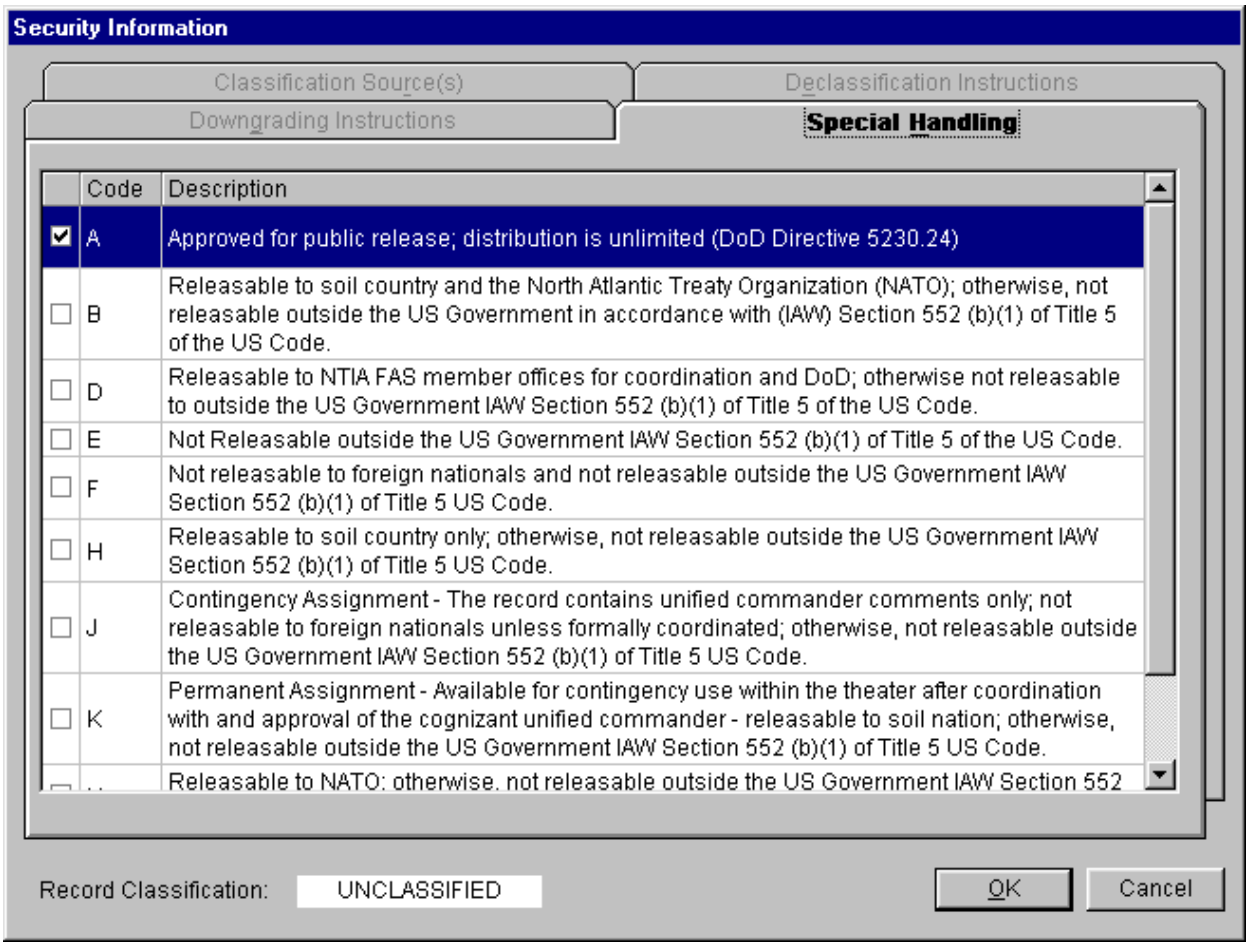
Note: Changing the classification of data items in equipments and Locations will affect the overall classification of all Certifications that use that equipment or Location. If an equipment or Location is used in more than one Certification, it will have a double padlock icon ( ) next to it in the **Tree View**.

All Certification records are required to have a Special Handling Code. When you create a brand new Certification, the record is unclassified and the Special Handling Code defaults to "A", which means unlimited distribution. If a record becomes classified, the "A" code is erased and you must specify a new Special Handling Code. In addition, all classified records are required to have a Classification Source and Declassification Instructions. Secret records may also have Downgrading Instructions.

To specify security information for a Certification, open the Certification in the Tree View, then click the **[Security Information]** node in the tree.



The **Security Information** screen appears.



Note: Only Certifications have Security Information. Transmitters, Receiver, Antennas, Locations, and other record types do not have a Security Information screen, although you can specify the security of individual data items, just as for Certifications. When working with these types of records, the program automatically maintains the highest classification of all the data items in the record.

The overall **Record Classification** is displayed at the bottom left of this screen. You may not change this, except by changing the classification of individual data items in the record.

The Security Information screen has four tabs used for entering the following information:

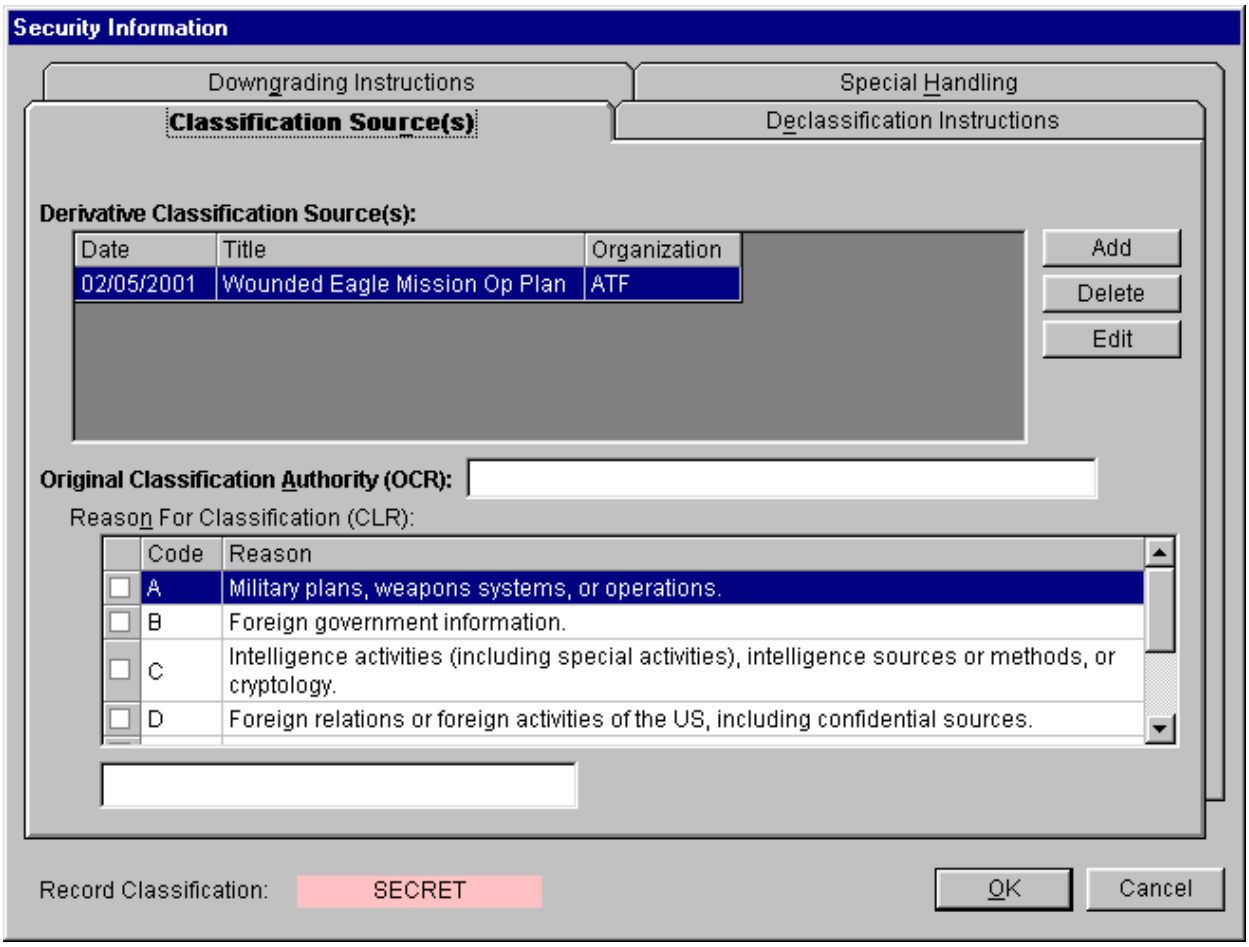
- **Special Handling**. All Certification records are required to specify a Special Handling Code.
- **Classification Source(s)**. Enabled only if the record is Confidential or Secret.
- **Declassification Instructions**. Enabled only if the record is Confidential or Secret.
- **Downgrading Instructions**. Enabled only if the record is Secret.

Special Handling

All Certification records require a Special Handling Code. Unclassified records that have not yet been given a code default to **A**, which means unlimited distribution. You must check exactly one of the check boxes in the left-hand column of the display.

Classification Source(s)

If a Certification is classified, you must specify at least one classification source. Click the **Classification Source(s)** tab. The Classification Source(s) screen appears.

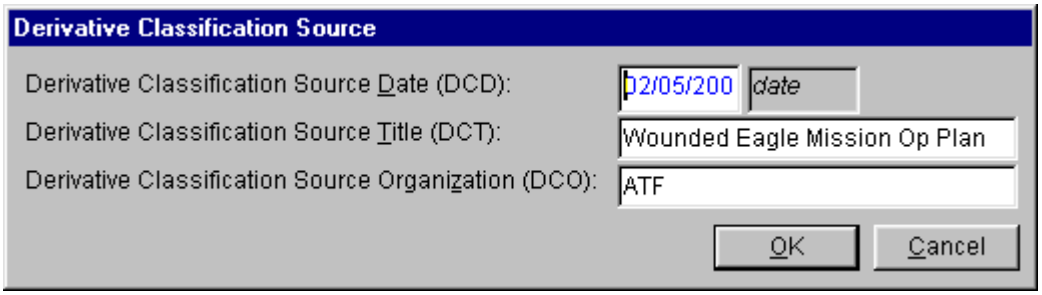


You may enter:

- One or more **Derivative Classification Sources** (DCS), and/or
- An **Original Classification Authority** (OCA). If an OCA is specified, a **Reason for Classification** (CLR) must also be specified.

Note: Most EL-CID users do not have Original Classification Authority. OCA is generally reserved for 3-star Generals and above and agency directors.

To enter a DCS, click the **Add** button. The **Derivative Classification Source** screen appears.



Enter the **Date**, **Title**, and **Organization** of the document or communication which contains the

classification instructions used as the source for this Certification. Click the **OK** button to return to the Classification Source(s) screen. You may add an additional DCS by clicking the **Add** button. To edit an existing DCS, highlight the DCS by clicking it once, then click the **Edit** button. To delete a DCS, highlight the DCS by clicking it once, then click the **Delete** button.

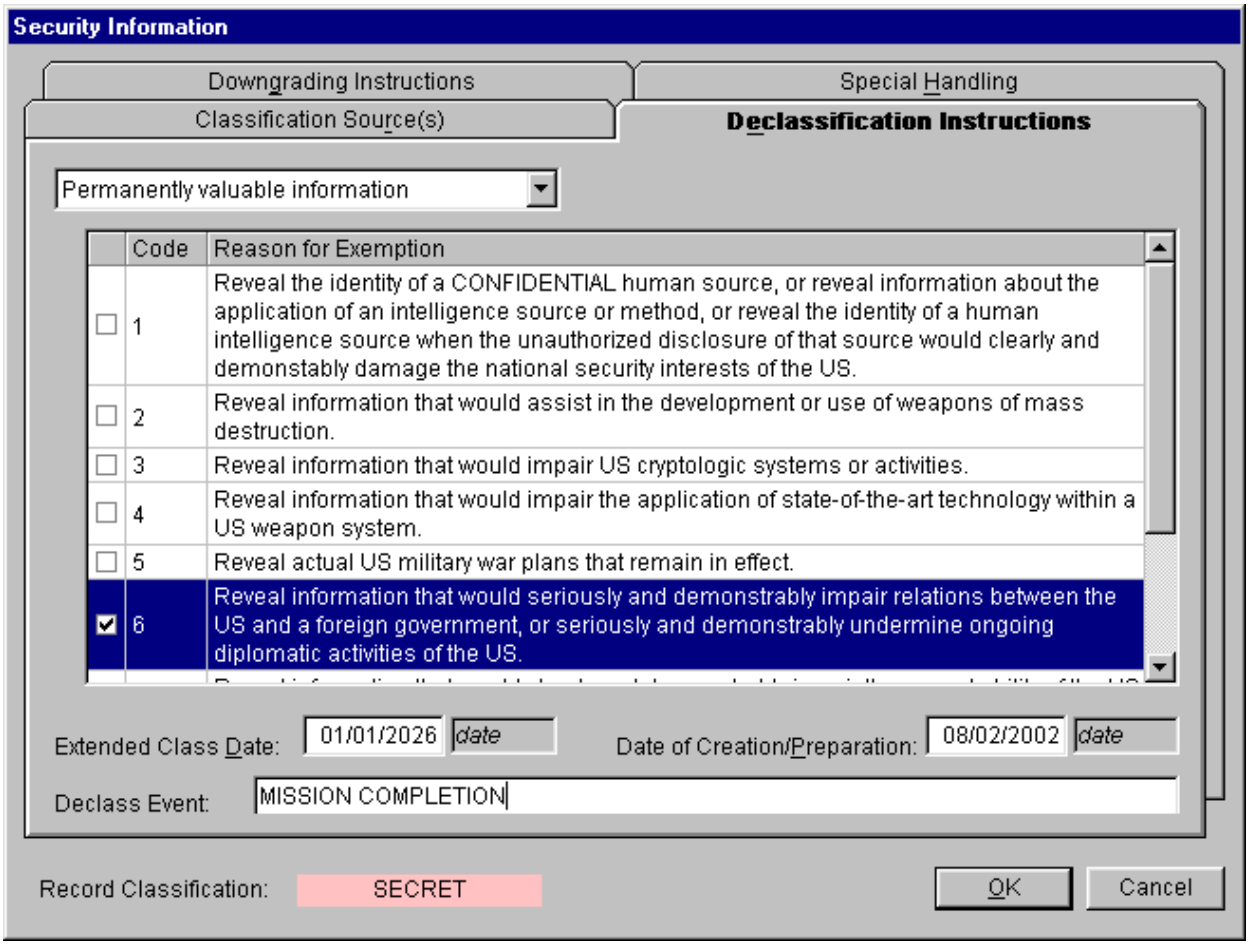
If you are an Original Classification Authority, enter your OCA designation in the **Original Classification Authority** box, then specify a **Reason for Classification** by either

- Checking one or more of the check boxes in the left-hand column of the grid, or
- Type in the reason in the box below the grid.

Note: When checking the reason check boxes, the program automatically generates the reason code preceded by "1.5", which refers to Section 1.5 of Presidential Order 12958.

Declassification Instructions

If a Certification is classified, you are required to specify Declassification Instructions. Click the **Declassification Instructions** tab. The Declassification Instructions screen appears.



Select a Declassification Instructions category by clicking the down arrow to the right of the top box and click one of the categories in the drop down list that appears. Depending upon the category chosen, additional information is entered as follows:

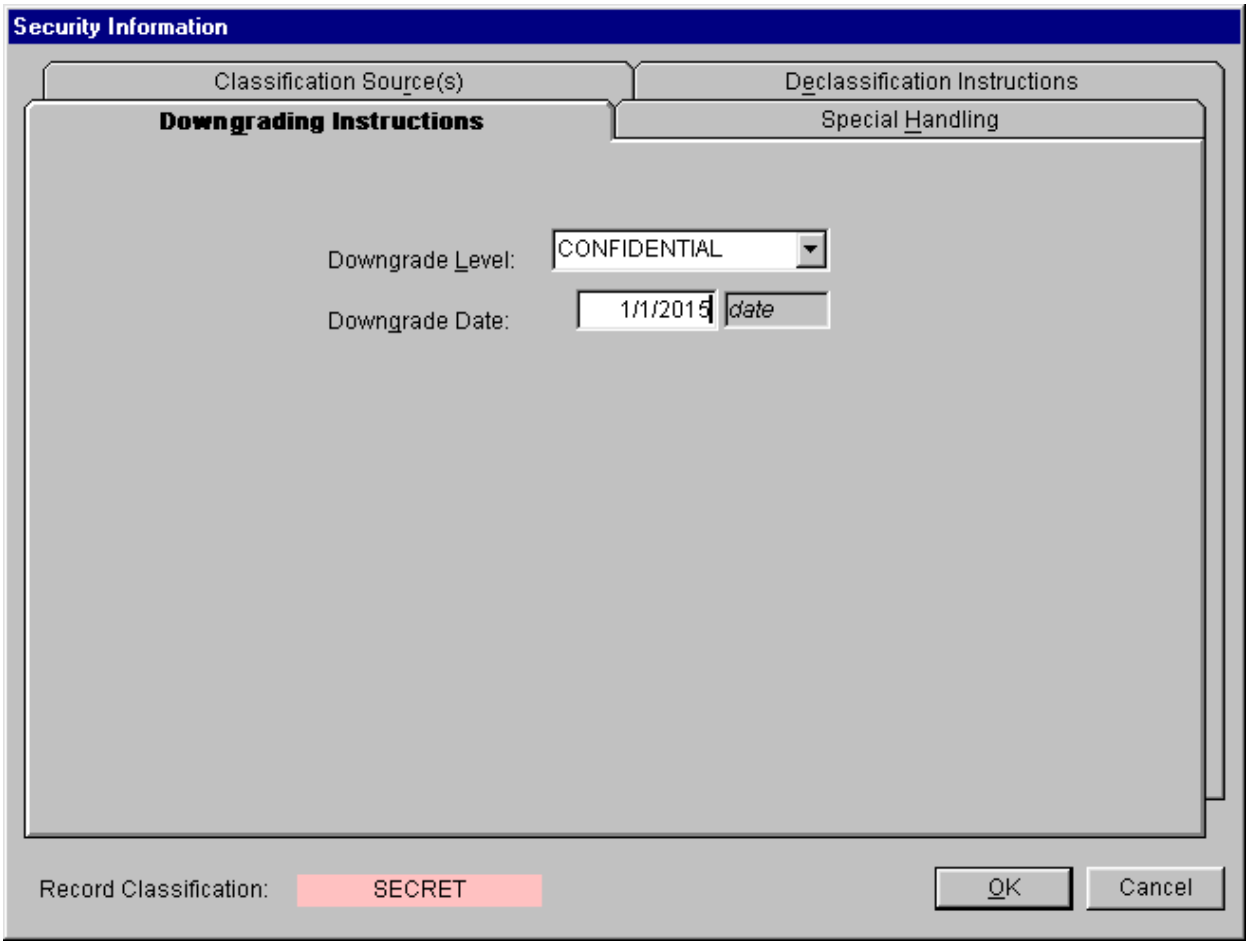
- **Declassify on: (date)**. Enter a **Declassification Date** in the box that appears.
- **Exempt from automatic declassification**. Specify a **Reason for Exemption** by checking exactly one check box in the left-hand column of the grid that appears.

- **Permanently valuable information**. Specify a **Reason for Exemption** by checking exactly one check box in the left-hand column of the grid that appears. Also enter an **Extended Class Date** in the box that appears. You may optionally specify a **Declass Event** in the box that appears, in which case, the record will be declassified on the date specified or on the event, whichever occurs sooner. Note: If **Reason for Exemption** Code 1 is checked, the **Extended Class Date** and **Declass Event** boxes are disabled.
- **Originating agency determination required**. This option is obsolete. You may not choose this option. It only appears to accommodate existing records.
- **Declassify on event**. Specify a **Declass Event** in the box that appears.

The Declassification Instructions screen also has a **Date of Creation/Preparation** box. Whenever you create a new Certification record, this item is automatically set to the current date and time. It is used when calculating markings for prints involving more than one record, in order to determine the most restrictive declassification and downgrading instructions from among all the records printed. See Classification Markings of Aggregate Outputs for more information. You may change the date in this box.

Downgrading Instructions

If a record is Secret, you may optionally specify downgrading instructions. Click the **Downgrading Instructions** tab. The Downgrading Instructions screen appears.



Select **CONFIDENTIAL** in the **Downgrading Level** box and enter the date the record will be downgraded in the **Downgrade Date** box. If a record is to have no downgrading instructions, select **None** in the **Downgrading Level** box.

More About Security Information

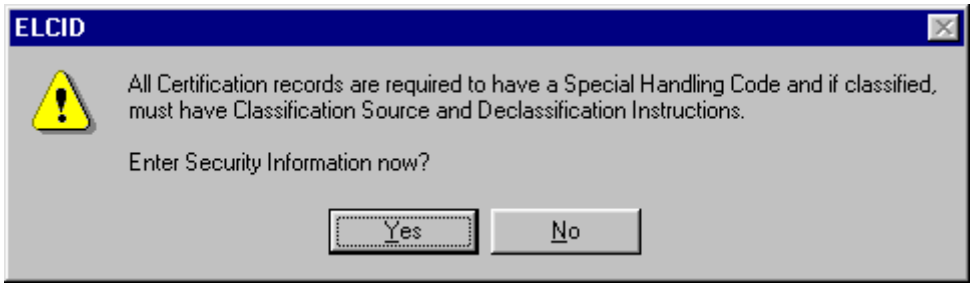
When you are finished entering all security information for the Certification, click **OK**, or to abandon all changes, click **Cancel**.

When you change the security of any individual data item in a record, the program will automatically upgrade or downgrade the overall classification of the record if necessary. For example, if you change all Secret data items to Unclassified, the overall security of the record will be downgraded to Unclassified. When this happens, the program will erase the corresponding information you entered in the Security Information screen. Specifically

- If a record is downgraded from Confidential or Secret to Unclassified, the Declassification Instructions and Classification Source(s) are erased. If this occurs and you later upgrade the record's classification, you must re-enter the erased information.
- If a record is downgraded from Secret to Confidential or Unclassified, the Downgrading Instructions are erased. If this occurs and you later upgrade the record's classification, you must re-enter the erased information.
- If an Unclassified record with Special Handling Code of A is upgraded to Confidential or Secret, the A Special Handling Code is erased and you must specify a new Special Handling Code. This is required even if you subsequently downgrade the record to Unclassified.

Tip: Say you have a record where the only Confidential data item is System Description. You want to change the record so that the System Name is Confidential and the System Description is Unclassified. To avoid having to re-enter the Classification Source(s) and Declassification Instructions, first change the System Name to Confidential, then change the System Description to Unclassified.

When closing a Certification in the Tree View, if you have not yet specified Security Information, the following message appears.



If you are ready to enter the security information, click **Yes**, then click the **[Security Information]** node in the tree. If you are not yet ready to enter the security information, you may click **No**, however, the program will display the message above each time you close the Certification in the Tree View until you have entered the information, or the requirement for security information is gone.

In addition, there are Compliance Checks that will fail records that are missing required security information. Furthermore, when printing or exporting, you may receive additional warning messages because EL-CID cannot calculate aggregate classification markings if the security information is missing.

Managing the Database

About Record IDs, Approval Status, Timestamps, and Versions

The EL-CID program manages records of 11 types:

- Certifications
  Transmitters
- Receivers
- Antennas
- Locations
- Accepted Locations
- Compliance Checks
- Manufacturers
- Policies
- Recommendations
- Agencies

Certifications may be thought of as "super records" because they contain (or use) Transmitter, Receiver, Antenna, and Location records.

Each record type has one or more data items (fields) that make up the identifier (ID) of the record. The following table lists the data items that make up the ID for each record type

Record Type	**ID Data Items**
Certification	Agency System Name Stage Approval Status Timestamp Coordination ID
Transmitter	Nomenclature Approval Status Timestamp Coordination ID
Receiver	Nomenclature Approval Status Timestamp Coordination ID
Antenna	Nomenclature Approval Status Timestamp Coordination ID
Location	State/Country City Approval Status Timestamp
Accepted Location	State/Country City

	Approval Status Timestamp
Compliance Check	Name Approval Status Timestamp
Manufacturer	Manufacturer
Policy	LowFreq HighFreq Policy
Recommendation	Recommendation
Agency	Agency

These IDs appear throughout the program. For example, on the Tree View screen, they appear in the panel in the bottom right-hand corner of the screen. On the Query Results screen, they appear as columns of the query results. On the Import Record List screen, they appear in the ID column.

Notice that Certifications, Transmitters, Receivers, and Antennas include Coordination ID. The Coordination ID defaults to "J/F 12" and can be safely ignored by all users except DoD users. DoD uses this data item to build alternate versions of records for coordination with other countries.

Notice that for all except Manufacturers, Policies, Recommendations and Agencies, the ID includes Approval Status. When you create a new record, or clone an existing one, the Approval Status is always set to Unapproved and you cannot change this unless you are a Certifier. When a Certifier approves a record, the Approval Status changes to Approved. In addition, when a Certification record is approved, the Approval Status of all the equipments and Locations used in the Certification are also changed to Approved. Here is a key rule to remember:

Rule: If you are not a Certifier, you are not allowed to modify any record with Approval Status of Approved.

There are several consequences of this rule if you are not a Certifier:

1. You cannot modify an equipment or Location if it is used in an Approved Certification. There are several places in the program where you can choose **Show Using Certifications** to show you which Certifications contain the equipment or Location in question. See Querying Using Certifications.
2. If you need to modify an Approved record, you can Clone it. The clone is automatically Unapproved and therefore you may modify it.
3. If you are working on a Certification containing an Approved equipment and you need to modify the equipment, you can **Clone** the equipment and then Replace it. This preserves as much of the Link Information as possible.
4. You cannot delete an equipment or Location from the database if it is used in any Approved Certifications (since that would modify those Certifications), unless you first delete all the using Certifications from the database. The Delete Old Records option on the **Maintenance** menu automatically takes care of this for you.

All record types except Manufacturers, Policies, Recommendations and Agencies have a Timestamp. The Timestamp is automatically maintained by the program. It is the date and time (to the nearest second) that the record was last modified. Note that modifying an equipment or Location also changes the Timestamp of all Certification records that use the equipment or Location. When a record is exported, the Timestamp is exported with it. If a record is modified after it has been exported, when the older record is imported, it will have a different ID and therefore it will be considered a different record from the current one still in the database. The Import automatically flags these records as **OLDER** and **Skips** such records, but you can override this to **Add**. If you Add the record, you will have two records in the database with identical IDs except for Timestamp.

Definition: A record is older than another record of the same type if its Timestamp is older than the other, and the rest of the ID is identical or the rest of the ID is identical except that the record is Unapproved and the other record is Approved.

If you export a record and send it to someone else, they modify it, export it, send it back to you, and you import it, you will end up with two versions of the record with identical IDs except for the Timestamp -- your original record, and the newer imported record. This is useful because you may wish to compare the two versions of the record in order to find out what was changed. Note that when NTIA approves a Certification and sends it back to you, the approved record is considered to be a newer version of your record -- the IDs are identical except for the Approval Status and the Timestamp.

You can get rid of older versions of records in the database using the Maintenance menu, or from the Query Builder.

Definition: Two records of the same type are similar if their identifiers (IDs) are identical except for Approval Status, Timestamp, and Coordination ID.

In several places in the program, you are allowed to query on similar versions. This option automatically creates a query for you, selecting records having the same ID as the current record, except for Approval Status, Timestamp and Coordination ID.

Summary

Most users do not need to concern themselves with all of this. Most users only need to remember three things:

1. If you are presented with a choice of multiple versions of the same record, choose the most recent one, which generally will be listed first.
2. Periodically delete older versions of records from your database using the Delete Old Records option on the **Maintenance** menu. Do this especially after importing Certification records.
3. If you cannot modify something and you need to, Clone it. If you are working on a Certification containing an Approved equipment (it has a red padlock  next to it in the Tree View), **Clone** the equipment and Replace it in the Certification with the clone.

Cloning Records

Cloning a record makes a copy of the record. Cloning a record automatically makes the following changes to the clone (the copy; not the original):

- The Approval Status is changed to Unapproved.

  The Timestamp is set to the current data and time.
- The Agency Code of Certifications is changed to your logged-in agency.
- A message is added to the Certification Status Log indicating the record from which the clone was created.

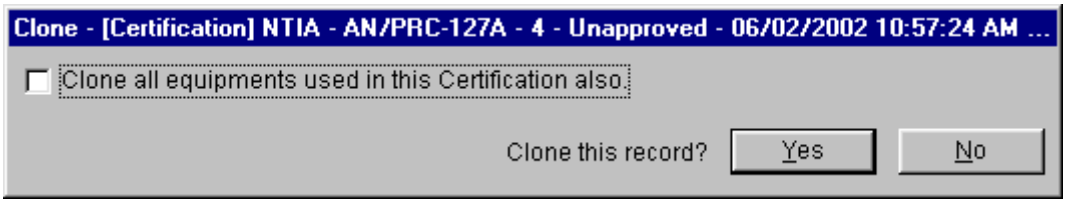
Cloning records is useful for two reasons:

1. You are not a Certifier and the record is Approved. Therefore, you cannot modify it. The clone is automatically Unapproved and therefore you may modify it.
2. When creating a new record, you want to re-use an existing record to save typing.

There are several ways to clone a record:

1. You can clone a Certification from the Tree View screen. With the Certification open in the Tree View screen, click the Clone Record button  on the tool bar, or click **File** on the main menu, then click **Clone**.
2. You can clone a Certification, Transmitter, Receiver, Antenna, Location, or Compliance Check record from the Query Results screen. Right-click on the record in the Query Results grid and choose **Clone** in the popup menu that appears, or click the Clone Record button  on the tool bar
3. You can clone a Transmitter, Receiver, Antenna, or Location from the Tree View screen. Click on the **[Transmitter]**, **[Receiver]**, **[Antenna]**, or **[Location]** node in the tree to highlight it. Then right-click and choose **Clone** in the popup menu that appears.

In any case, the **Clone** screen appears.

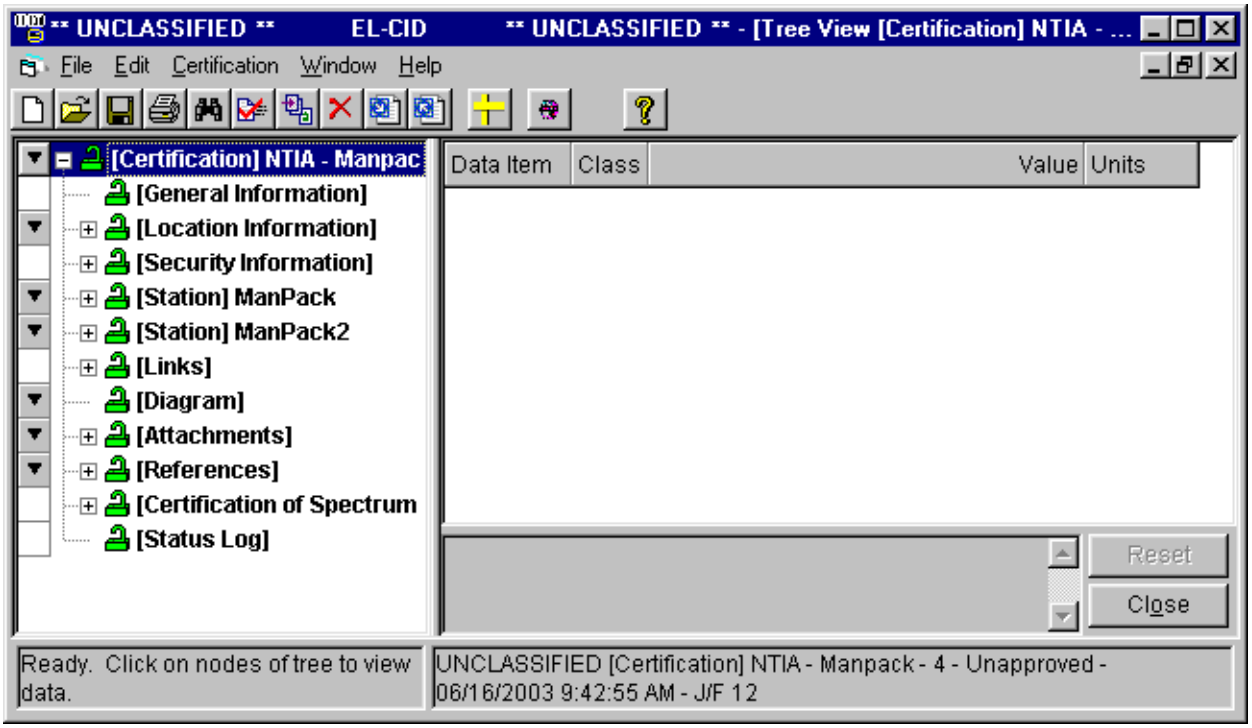


The title bar of this screen displays the type and ID of the record to be cloned.

The **Clone all equipments used in this Certification also** check box only appears when cloning a Certification record. Check this box if you also want to clone all equipment records (Transmitters, Receivers, and Antennas) used by the Certification.

Note: You should only check **Clone all equipments used in this Certification also** if you know that you need to modify those equipment records. If you need to, you can clone individual equipments later in the Tree View screen.

Click **No** to abandon cloning the record, or click **Yes** to clone the record. The **Tree View** screen appears with the cloned record.



In many cases, you may wish to immediately rename the cloned record by changing the data items that make up its ID. For example, when cloning a Certification, you may wish to change the System Name or Stage. Click on the **[General Information]** node to do that. When cloning an equipment, you may wish to change the equipment Nomenclature. When cloning a Location, you may wish to change the State/Country or City. See Tree View for more information on using the Tree View screen.

Note: You are not required to rename the clone. The program will automatically maintain multiple versions of the same record. See About Record IDs, Approval Status, Timestamps, and Versions for more information. Renaming records will help to avoid confusion however, if you are creating a brand new Certification Application. If you are updating an existing Certification, it may be appropriate not to rename it. It all depends upon your purpose.

Comparing Two Records

You can compare any two records (of the same type) in the database to view the differences between them. This is useful for the following reasons:

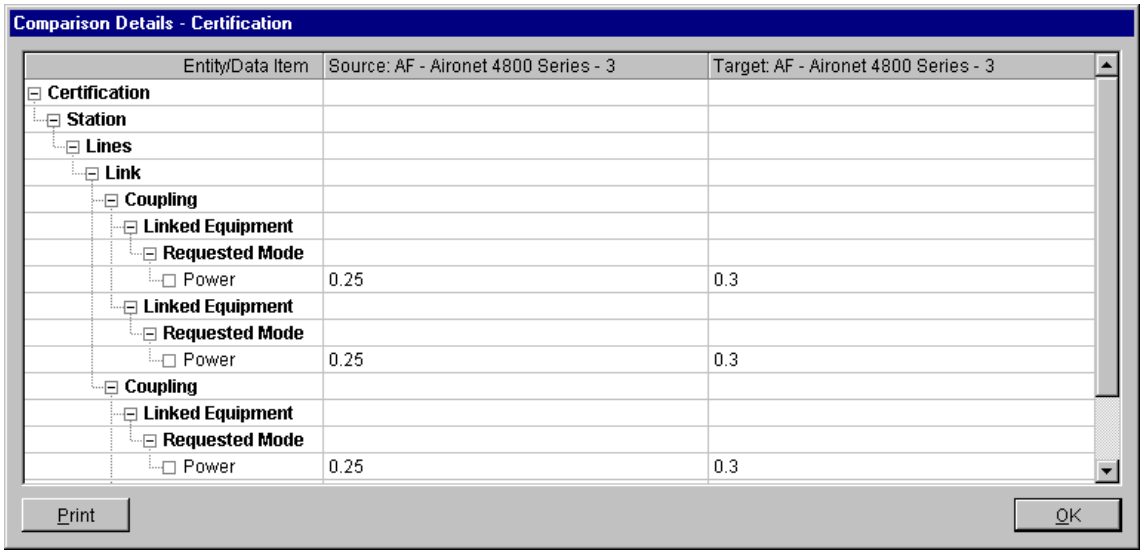
- You created a Certification, exported it, and sent it to someone else. They returned the record to you and you just imported it. You want to see what they changed.
- You just imported a quarterly distribution of the database and noticed that someone updated an equipment in the database which you used when preparing a Certification. You want to see what was changed in the updated equipment because you are considering changing your Certification to use the updated equipment.
- You want to compare a record you created with a similar record someone else created.
- You want to view the historical changes to a record.
- There are multiple versions of a record in your database, and you want to be sure that the one with the latest Timestamp is in fact the latest record. See About Record IDs, Approval Status, Timestamps, and Versions for more information about record versions.

To compare two records, proceed as follows:

1. Create a query to select the two records.
2. In the Query Results screen, highlight both records by clicking on one of them, then hold down the **Ctrl** key and click the other one.

   Note: You must highlight exactly two records (rows) of the grid.

3. Click the Compare button  on the tool bar, or right-click either record and click **Compare** in the popup menu that appears. After a short while, the **Comparison Details** screen appears.



The title bar of the screen indicates the type of records that are being compared. The screen displays the differences between the two records. Data items that are the same in the two records are not displayed. The **Entity/Data Item** column indicates the data item that is different. The items are listed in a tree structure similar to the tree that appears in the Tree View. **Bolded** items correspond to nodes of the tree; unbolded items correspond to individual data items (fields). The second and third columns display the values of the data item in each of the two records. The identifier (ID) of the records are displayed in the second and third column headers.

Note: If a cell of the grid is grayed, it means that data item is missing (does not exist) in the record.

When finished viewing the differences between the two records, click **OK**.

Replace an Equipment with Another

Equipment records (Transmitters, Receivers, and Antennas) are used in Certification records. You can replace an equipment in a Certification record with a different equipment or replace it with another version of the same equipment. Replacing equipments is useful for the following reasons:

- There is a newer version of an equipment available and you want to upgrade the Certification(s) using the equipment. See About Record IDs, Approval Status, Timestamps, and Versions for an explanation of record versions.
- You are not a Certifier, and you are working on a Certification containing an equipment that is Approved (there is a red padlock next to the equipment in the Tree View). Therefore, you may not modify the equipment and you need to in order to make the Certification record complete or accurate.

Note: There are three restrictions on replacing equipments in a Certification:

1. If you are not a Certifier, you may not replace equipments in Approved Certification records.

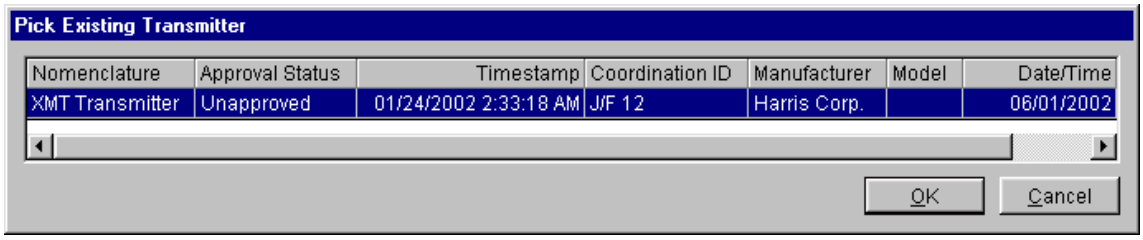
   You may not attach the same equipment more than once to the same **[Station]**.
2. You may not use more than one version of the same equipment in a single Certification record.

When replacing equipments, the program attempts to preserve as much as possible of the Link Information and **Selected Modes** already in the Certification.

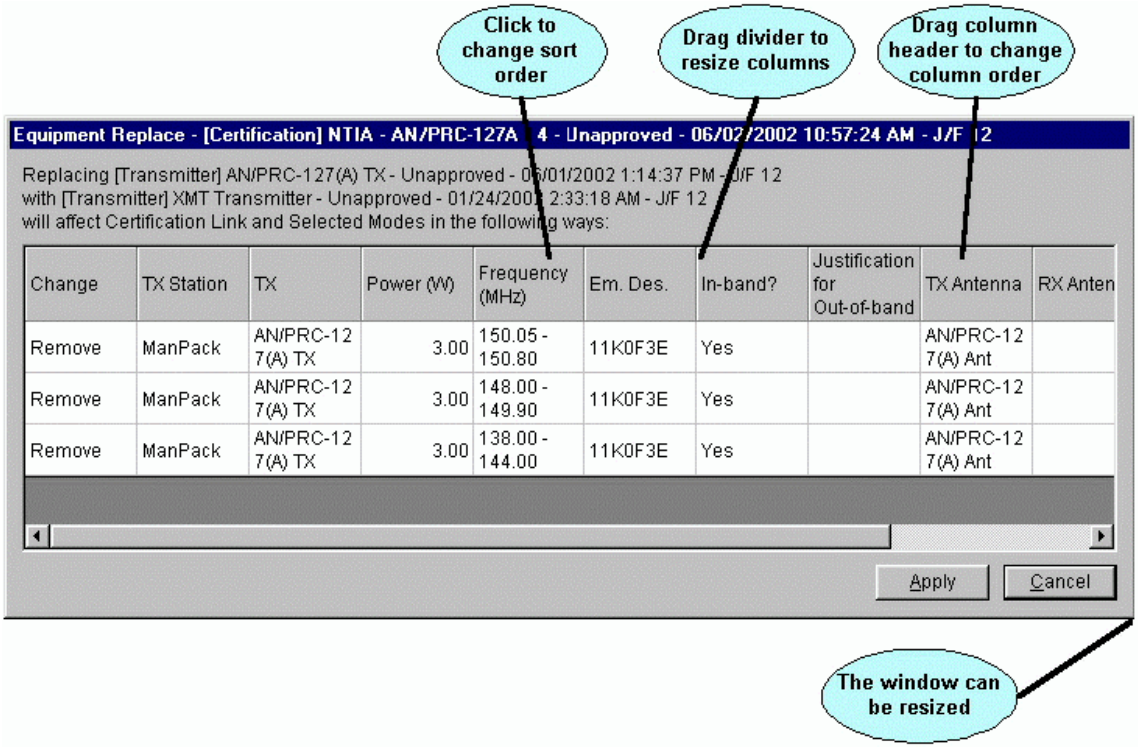
You can replace an equipment in a single Certification record or you can replace an equipment globally in every Certification in the database that uses it.

To replace an equipment in a single Certification record, proceed as follows.

1. Open the Certification record in the Tree View.
2. In the tree, click on the node of the equipment you want to replace.
3. Right-click on the equipment node and click **Replace** in the popup menu that appears. The **Pick Existing Equipment** screen appears.



4. The screen will not list any equipments that violate the restrictions mentioned above. Click **Cancel** to abandon replacing the equipment, or highlight the desired replacement equipment by clicking on it and click **OK**. The **Equipment Replace** screen appears.



5. The program examines all the existing Link Information and **Selected Modes** in the Certification and calculates the effect replacing the equipment will have on them. The **Change** column indicates what will happen to individual Selected Modes when you replace the equipment. The following are the possible values for the Change column.

   - **None**. The Certification does not have any Selected Modes, therefore replacing the equipment will not affect the Link Information.
   - **Not affected**. The Selected Mode does not involve the replaced equipment, therefore, replacing the equipment will have no effect on this Selected Mode.
   - **No change**. The Selected Mode does involve the equipment, but the replacement equipment is completely compatible with the replaced equipment and therefore does not affect this Selected Mode.
   - **Change nomenclature only**. Replacing the equipment will only change the nomenclature in the Selected Mode. The frequency, power, and Emission Designator of the Selected Mode will not be affected.
   - **Remove**. The Selected Mode will be deleted from the Certification because the replacement Transmitter does not have the same frequency, power, or Emission Designator as the replaced Transmitter.

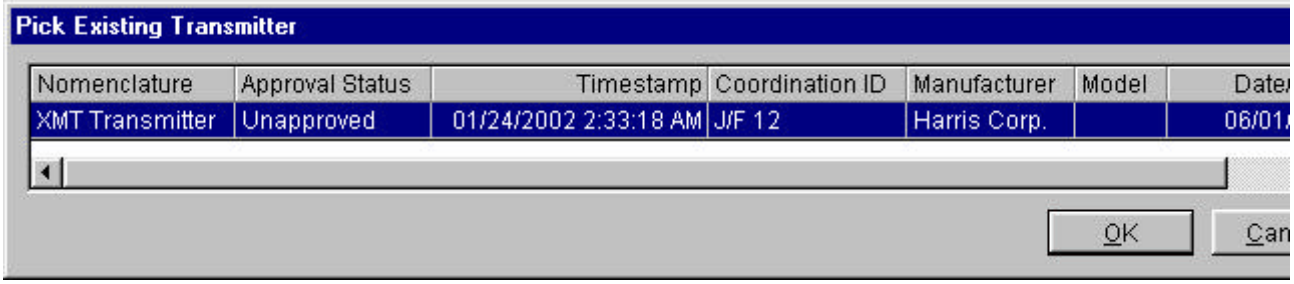
   Note: When determining whether the replacement Transmitter is compatible with the replaced Transmitter, frequencies must match exactly. For example, if the replaced Transmitter had a Tuned Frequency of 100 MHz to 200 MHz, and the replacement Transmitter had a Tuned Frequency of 100 MHz to 300 MHz, the Transmitters are considered incompatible and Selected Modes based on this Tuned Frequency will be **Remove**d from the Certification.

If the changes listed are not acceptable, click **Cancel** to abandon replacing the equipment. If the changes

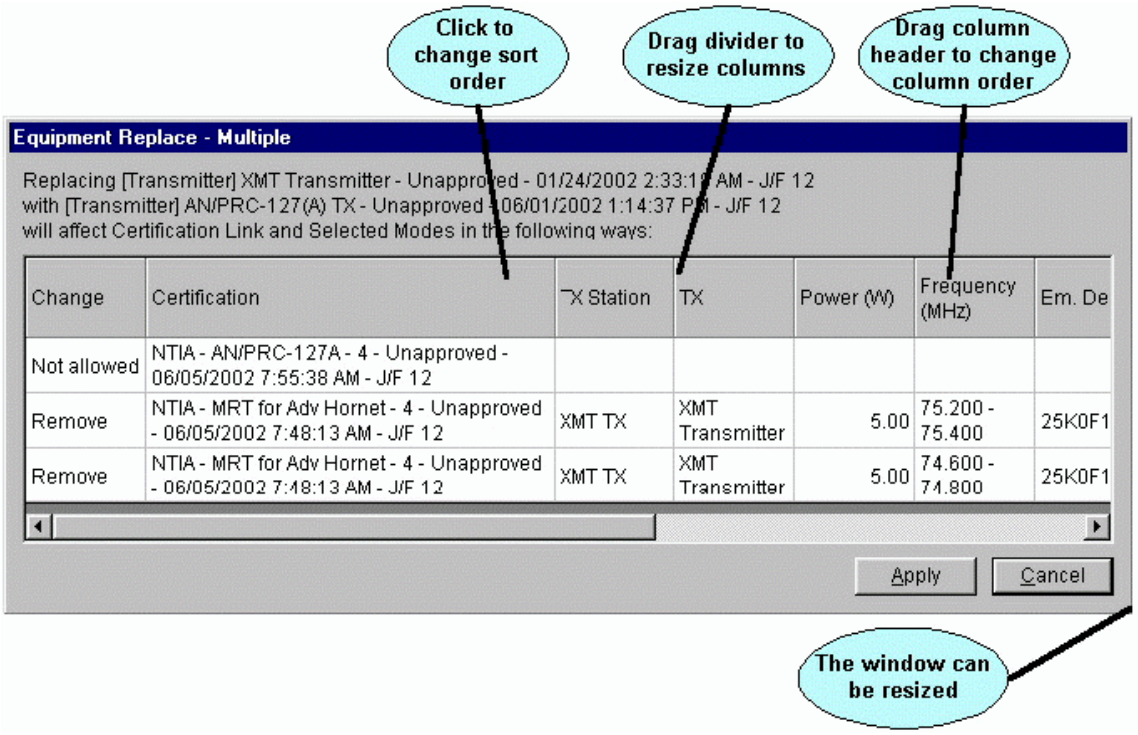
listed are acceptable, click **Apply**. The equipment will be replaced and the Selected Modes will be updated. After a short while, the Apply button will change to **OK**. Click **OK** to close the screen.

To replace an equipment globally in all Certification records that use it, proceed as follows.

1. Build a query to select the equipment you want to replace.
2. In the Query Results screen, highlight the equipment you want to replace by clicking on it.
3. Right-click on the equipment and click **Replace** in the popup menu that appears. The **Pick Existing Equipment** screen appears.



4. Click **Cancel** to abandon replacing the equipment, or highlight the desired replacement equipment by clicking on it and click **OK**. The **Equipment Replace - Multiple** screen appears.



5. The screen lists the identifiers (IDs) of all the Certifications that use the replaced equipment along with their Link Information and Selected Modes. The program examines all the existing Link Information and **Selected Modes** in the Certifications and calculates the effect replacing the equipment will have on them. The **Change** column indicates what will happen to individual Certifications or Selected Modes when you replace the equipment. The following are the possible values for the Change column.

   ✍ **Access denied**. The Certification is Approved and you are not a Certifier, therefore you may not replace the equipment in this Certification.

- ✍ **Not allowed**. Replacing the equipment in this Certification would violate one of two things, and therefore it will not be replaced:
  1. The resulting Certification would have the same equipment attached more than once to the same **[Station]**.

     The resulting Certification would use more than one version of the same equipment record.
- ✍ **None**. The Certification does not have any Selected Modes, therefore replacing the equipment will not affect the Link Information.
- ✍ **Not affected**. The Selected Mode does not involve the replaced equipment, therefore, replacing the equipment will have no effect on this Selected Mode.
- ✍ **No change**. The Selected Mode does involve the equipment, but the replacement equipment is completely compatible with the replaced equipment and therefore does not affect this Selected Mode.
- ✍ **Change nomenclature only**. Replacing the equipment will only change the nomenclature in the Selected Mode. The frequency, power, and Emission Designator of the Selected Mode will not be affected.
- ✍ **Remove**. The Selected Mode will be deleted from the Certification because the replacement Transmitter does not have the same frequency, power, or Emission Designator as the replaced Transmitter.

Note: When determining whether the replacement Transmitter is compatible with the replaced Transmitter, frequencies must match exactly. For example, if the replaced Transmitter had a Tuned Frequency of 100 MHz to 200 MHz, and the replacement Transmitter had a Tuned Frequency of 100 MHz to 300 MHz, the Transmitters are considered incompatible and Selected Modes based on this Tuned Frequency will be **Remove**d from the Certification.

If the changes listed are not acceptable, click **Cancel** to abandon replacing the equipment. If the changes listed are acceptable, click **Apply**. The equipment will be replaced in the Certifications and the Selected Modes will be updated. After a short while, the Apply button will change to **OK**. Click **OK** to close the screen.

Deleting Records

You may wish to delete records from the database for the following reasons:

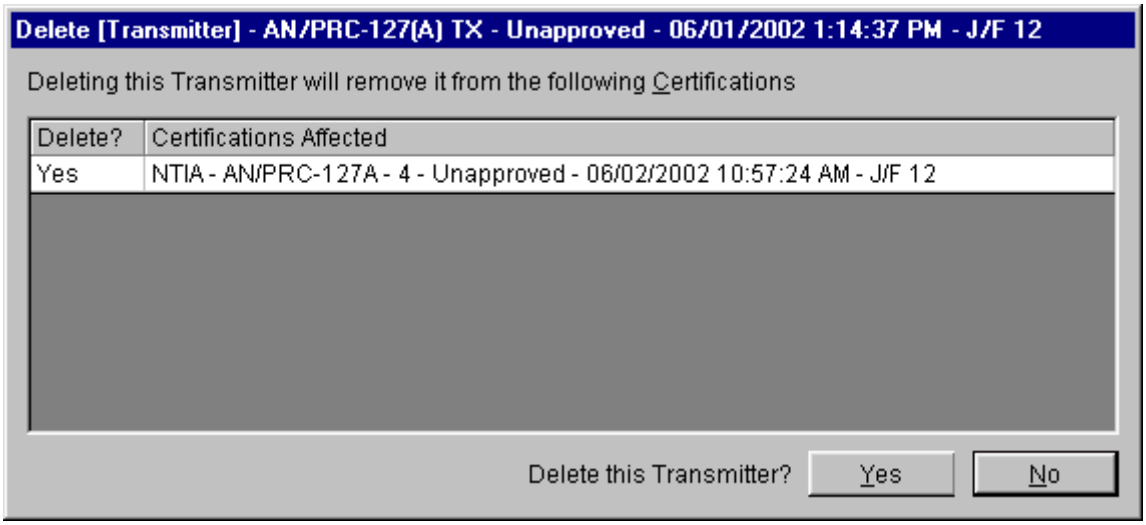
1. You are no longer interested in the record and want to recover the disk space used by it.
2. There are multiple versions of a record in the database and you want to delete some of them.

   Note: See About Record IDs, Approval Status, Timestamps, and Versions for more information about versions of records. There is a simpler way to delete old versions of records from your database. See Deleting Old Versions of Records for more information.

You can delete records in several ways:

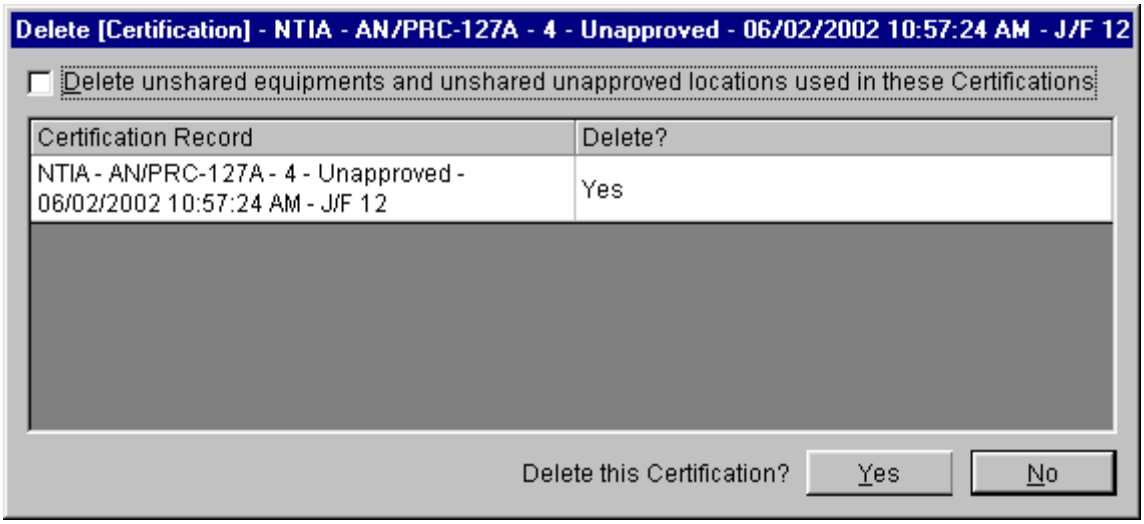
1. You can delete a Certification from the Tree View screen. With the Certification open in the Tree View screen, click the Delete Entire Record button on the tool bar, or click **File** on the main menu, then click **Delete**.
2. You can delete one or more Certification, Transmitter, Receiver, Antenna, Location, or Manufacturer records from the Query Results screen. Highlight the records in the Query Results grid. Then right-click on the records and choose **Delete** in the popup menu that appears.

In either case, when deleting equipments (Transmitters, Receivers, or Antennas) or Locations the **Delete** screen appears.



The screen displays a list of all the Certification records that use the equipments or Locations. If you are not a Certifier, you are not allowed to delete an equipment or Location if it is used in an Approved Certification. In this case, **No** will appear in the **Delete?** column. Otherwise, **Yes** appears in the column. Click the **No** button to abandon deleting, otherwise click the **Yes** button to delete the equipments or Locations. The deleted equipments or Locations will be removed from the Certifications listed with **Yes** in the **Delete?** column.

When deleting a Certification record(s), the **Delete [Certification]** screen appears.



The screen lists the identifiers of all the Certification records you selected for deletion. Check the **Delete unshared equipments and unshared unapproved locations used in these Certifications** check box if you want to also delete equipments and Locations used in the Certification records. Checking this box will not delete:

1. Equipments used in any Certification records not listed on the screen, or
2. Unapproved Locations used in any Certification records not listed on the screen.

In other words, the program will not delete an equipment or Location if, after deleting all the Certifications you've specified, there still remain Certification records using the equipment or Location. In no case will it delete Approved Location records. See About Record IDs, Approval Status, Timestamps, and Versions for more information.

Important: You cannot recover deleted records unless you first exported them!

Tip: If you first delete Certifications, you will have better results deleting equipments and Locations, since they will have less chance of being used in a Certification. The **Delete Old Records** option on the **Maintenance** menu will do this automatically for older versions of records.

Note: You should not delete Manufacturers unless you are certain the record is not used in any Certifications and will not be used in any future Certifications. Generally, you will only delete Manufacturers which you created and accidentally misnamed.

Tip: You can also delete Manufacturers while editing the Manufacturer data item in the Tree View.

Tip: After deleting records, you may wish to recover the disk space by choosing **Compact Database** from the **Maintenance** menu.

Note: You can also delete **Compliance Check**s from the **Query Results** screen (Compliance Checks that you created, for example), but if you are not a Certifier, you may not delete an Approved Compliance Check.

Deleting Old Versions of Records

Whenever you clone records, or whenever you import records, the possibility exists to have multiple versions of the same record in your database.

Definition: A record is older than another record of the same type if its Timestamp is older than the other, and the rest of the ID is identical or the rest of the ID is identical except that the record is Unapproved and the other record is Approved.

See About Record IDs, Approval Status, Timestamps, and Versions for an explanation of how this comes about.

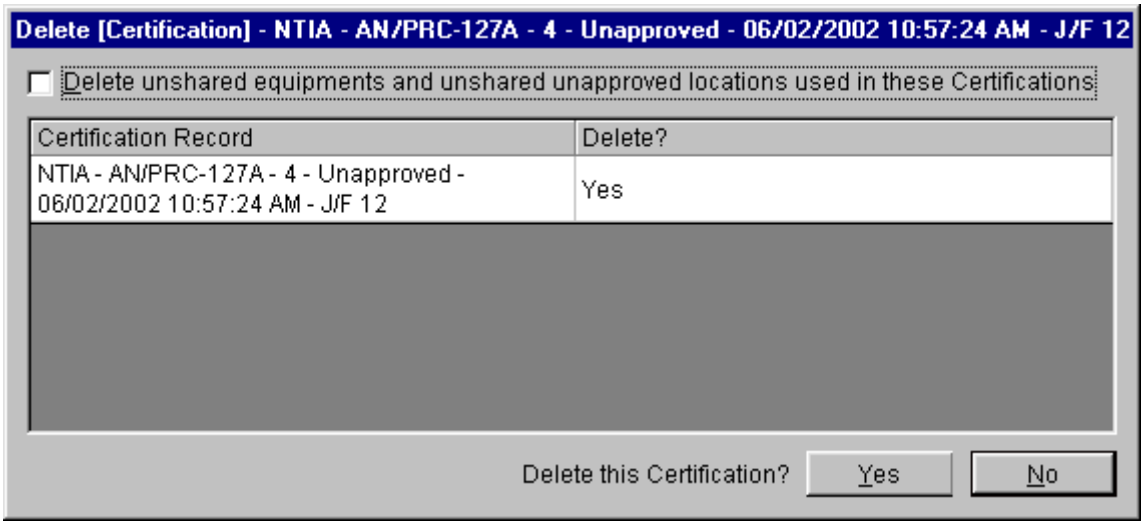
You should periodically purge the older versions of records from your database. The simplest way to do that is to proceed as follows:

1. Export any records that you think might be deleted by this procedure that you can't afford to lose. (Some examples of this situation are noted below.) See Querying Older Records for more information.
2. Close all Diagram View, Tree View, and Query windows currently open in the program.
3. On the main menu, click **Maintenance**.
4. Click **Delete Old Records**.

The program will scan the database, identifying older versions of records in the following order:

- Certifications
  Transmitters
- Receivers
- Antennas
- Locations
- Compliance Checks

In each case, if any records are found, a Delete screen will appear. For example, if any older Certification records are found, the **Delete [Certification]** screen appears.



Click **Yes** to delete the records in each case.

At the conclusion of all deletions, a summary screen giving the total records deleted appears.

The net result of running this option is to delete records from the database, except that:

- ✍ The latest version of Unapproved records stay in the database until a newer Approved version exists.
- ✍ Approved records stay in the database until a newer Approved version exists.
- ✍ Equipments and Locations stay in the database if they are used in any Certification records.

Important: You cannot recover deleted records unless you first exported them!

Tip: After deleting records, you may wish to recover the disk space by choosing **Compact Database** from the **Maintenance** menu.

Note: You should not use the **Delete Old Records** option in the following cases:

1. You just imported a Certification that someone returned to you and you haven't yet run a comparison of your record versus theirs.
2. You want to keep a history of older records.
3. You're working on several Certification applications that you created by cloning a single existing Certification, and you did not change the System Name, Stage, or Coordination IDs of any of the clones.
4. You're working on several equipment records that you created by cloning a single existing equipment, and you did not change the Nomenclatures of any of the clones.

Compacting the Database

Compacting the database saves disk space and improves the performance of the EL-CID program. You should periodically compact your database, especially if you've turned off automatic compaction in the Preferences. To compact the database, proceed as follows.

1. Close any Diagram View, Tree View, or Query screens you have open.
2. On the main menu, click **Maintenance**.
3. Click **Compact Database**. An hourglass cursor appears. After a short while, the hourglass cursor returns to a normal cursor and the database compaction is complete.

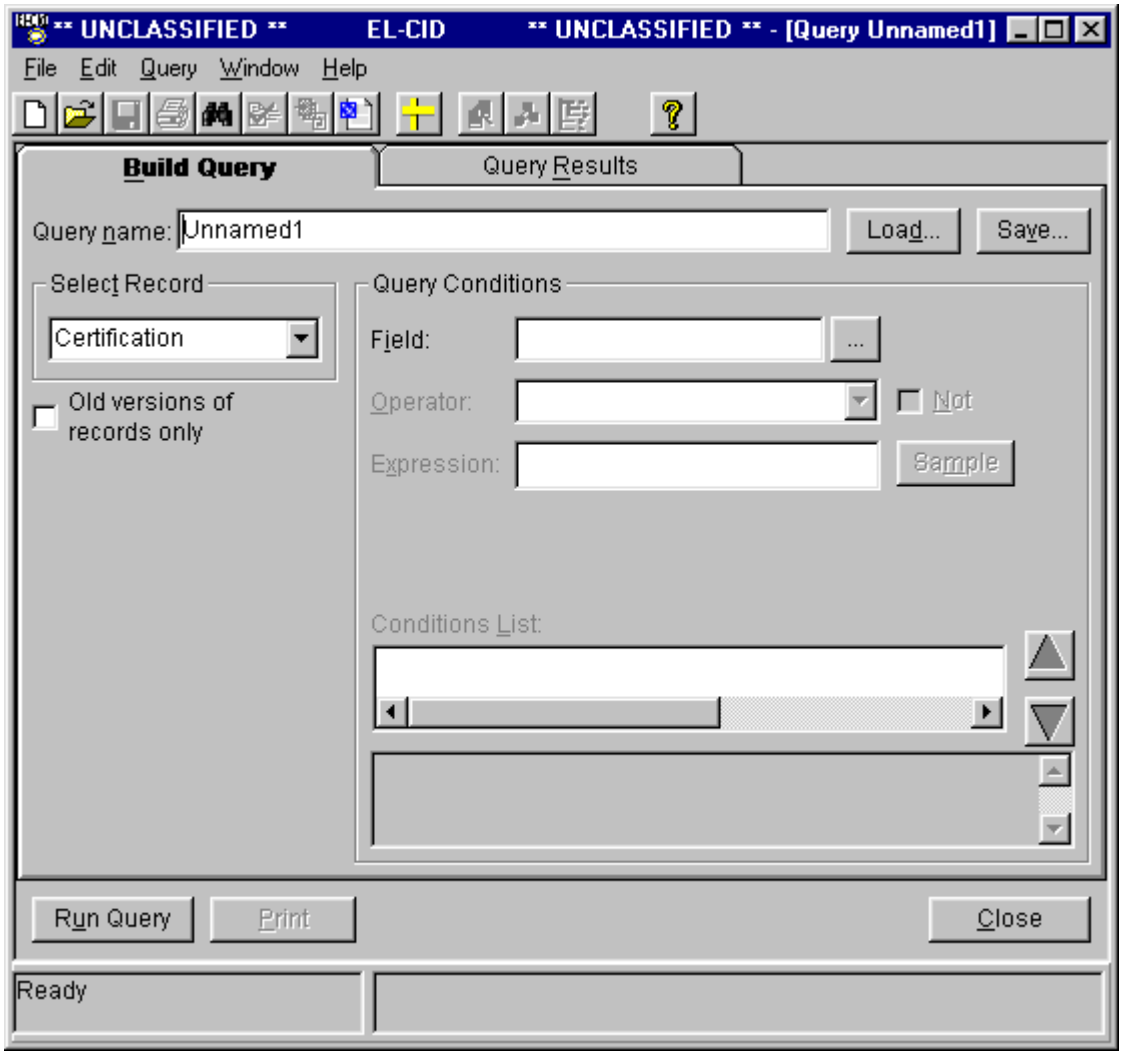
Backing Up (and Restoring) the Database

From time-to-time you should make backups of the data in the EL-CID database in case of computer failure or other problem. The EL-CID program does not have a built-in capability for making backups, but you can use the techniques described in this topic to make backups. There are several techniques.

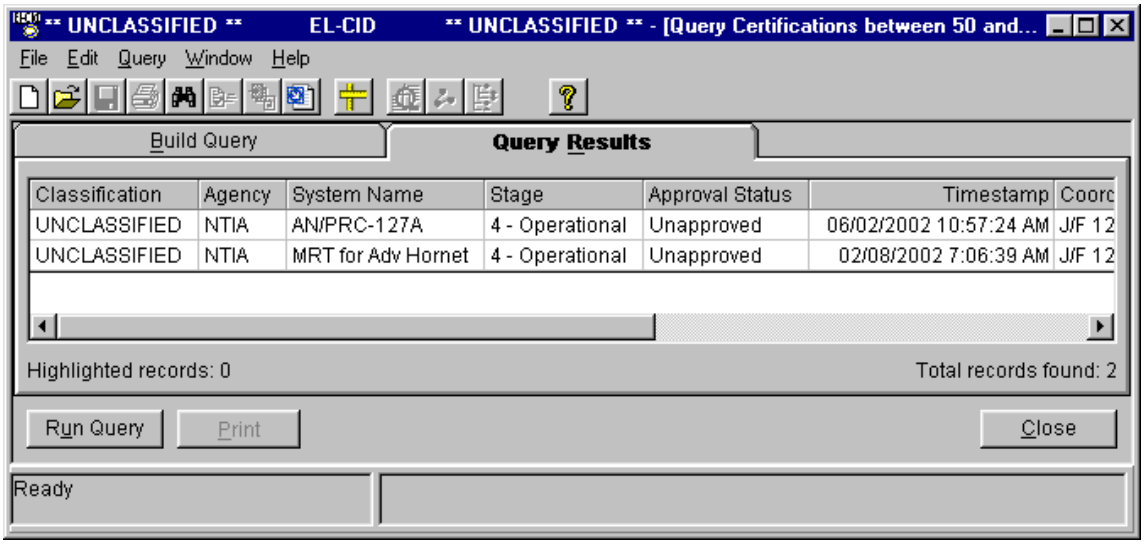
Technique 1: Mass Backup

In this technique, you export the entire database to a separate disk file. While this technique is the simplest to understand and use, it also requires the most time. Proceed as follows.

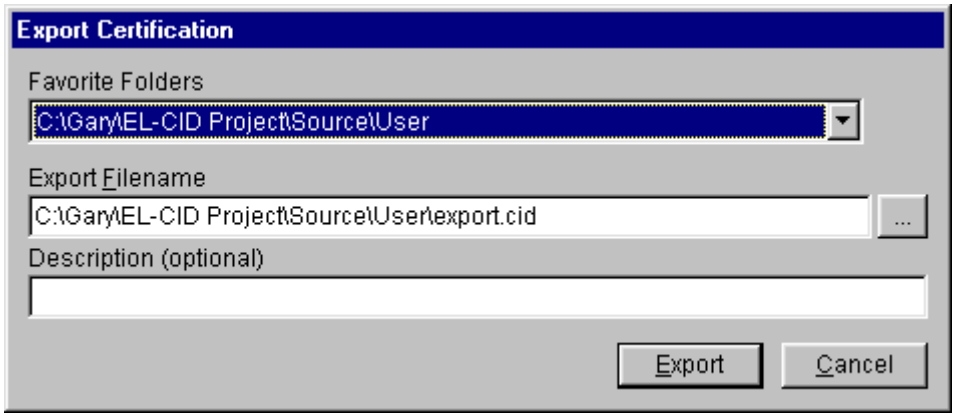
1. Select all the Certification records in the database by building a query to select Certifications, but do not enter any query conditions. Your query should look like this.



2. Run the query by clicking the **Run Query** button. The program will list all the Certifications in the database in the **Query Results** screen.



3. Highlight all the records in the **Query Results** screen by first clicking on the top record, then scroll to the bottom of the list and while holding down the **Shift** key, click the bottom record.
4. On the main menu, click **Query**, then **Highlighted**, then **Export**. The **Export Certification** screen appears.



Give your export file a meaningful name, such as "2002-05-12 Backup of All Certs". Click **Export** and the program will write all the Certification records to the disk file.

5. If you have created any Compliance Checks of your own, repeat steps 1 through 4, except at Step 1, choose **Compliance Check** in the **Select** frame.

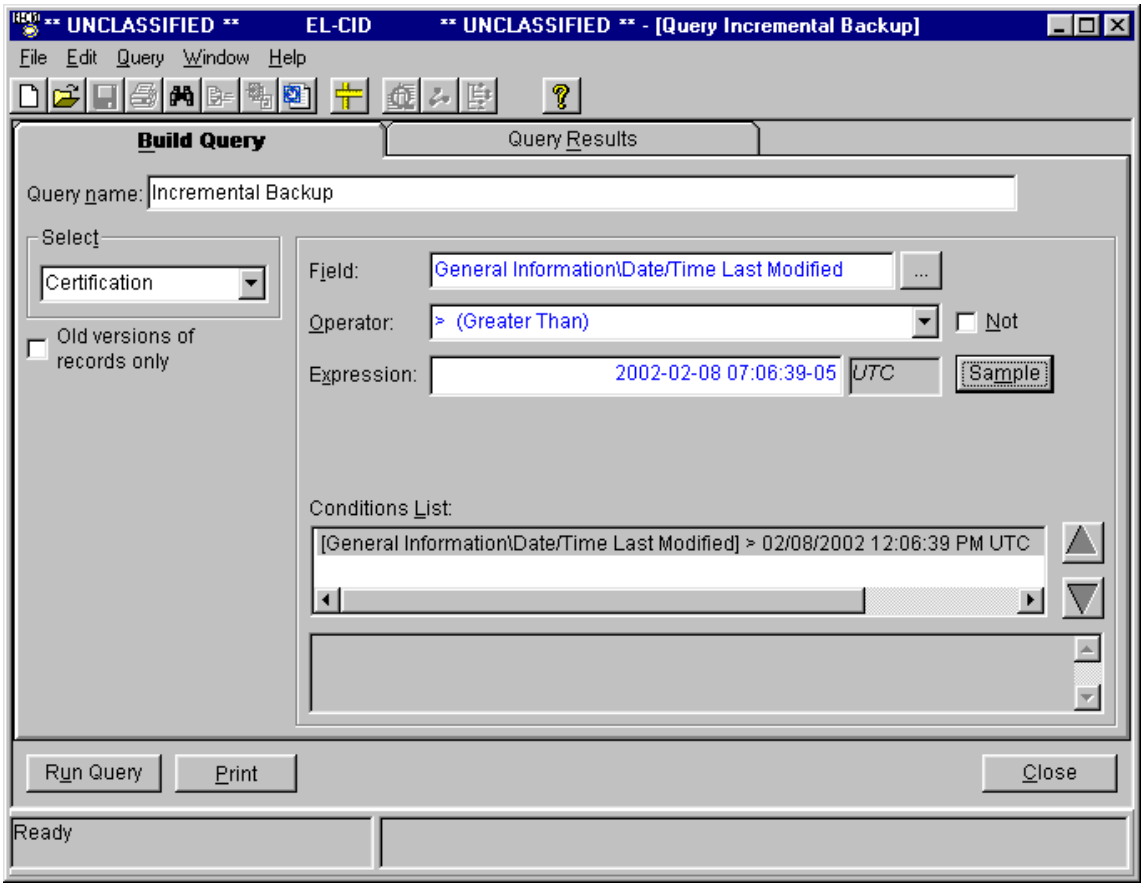
   Note: You don't need to worry about backing up equipments and Locations because these types of records are automatically included when exporting Certifications, so long as they are used in at least one Certification record.

6. To restore a backup created using this technique, you may first want to empty the entire database. See Emptying the Database (Starting Over). Then import the backup file(s) you created in Step 4. See Importing Data. Be prepared for a long wait to process all the records!

Technique 2: Incremental Backup

In this technique, instead of backing up all the records, you only backup those records that have been modified since the last backup, which saves time. Proceed as follows.

1. Perform your first backup using Technique 1 above. When you export the records, be sure to name the export file using a date in the format YYYY-MM-DD. This will allow you to quickly sort the export files by date.
2. To perform additional backups, proceed as in Technique 1, except when you build a query, add a condition to retrieve only records modified since the last export date. Your query should look something like this



Notice the query condition on data item **[General Information\Date/Time Last Modified]**. Enter the date of the previous incremental backup in the **Expression** box.

3. To restore incremental backups, you may first want to empty the entire database. See Emptying the Database (Starting Over). Then import each backup file in the reverse order from when they were created, i.e., most recent to oldest. This will avoid filling your database with older versions of records no longer needed. If you want the older records, import the backup files in the order they were created, i.e., oldest to most recent.

Final Steps and Cleanup

In all cases, it is a good idea to copy your backup files to another storage medium and store that media off-site in case of a catastrophic event such as fire.

After making a backup, it is a good idea to clean up your database. See Deleting Old Versions of Records

and Compacting the Database.

Emptying the Database (Starting Over)

This topic describes how to delete all records from your database, restoring the database to the same state it was in when you first installed EL-CID. You might want to perform this procedure if you are restoring the database from backups or in case of some other serious problem.

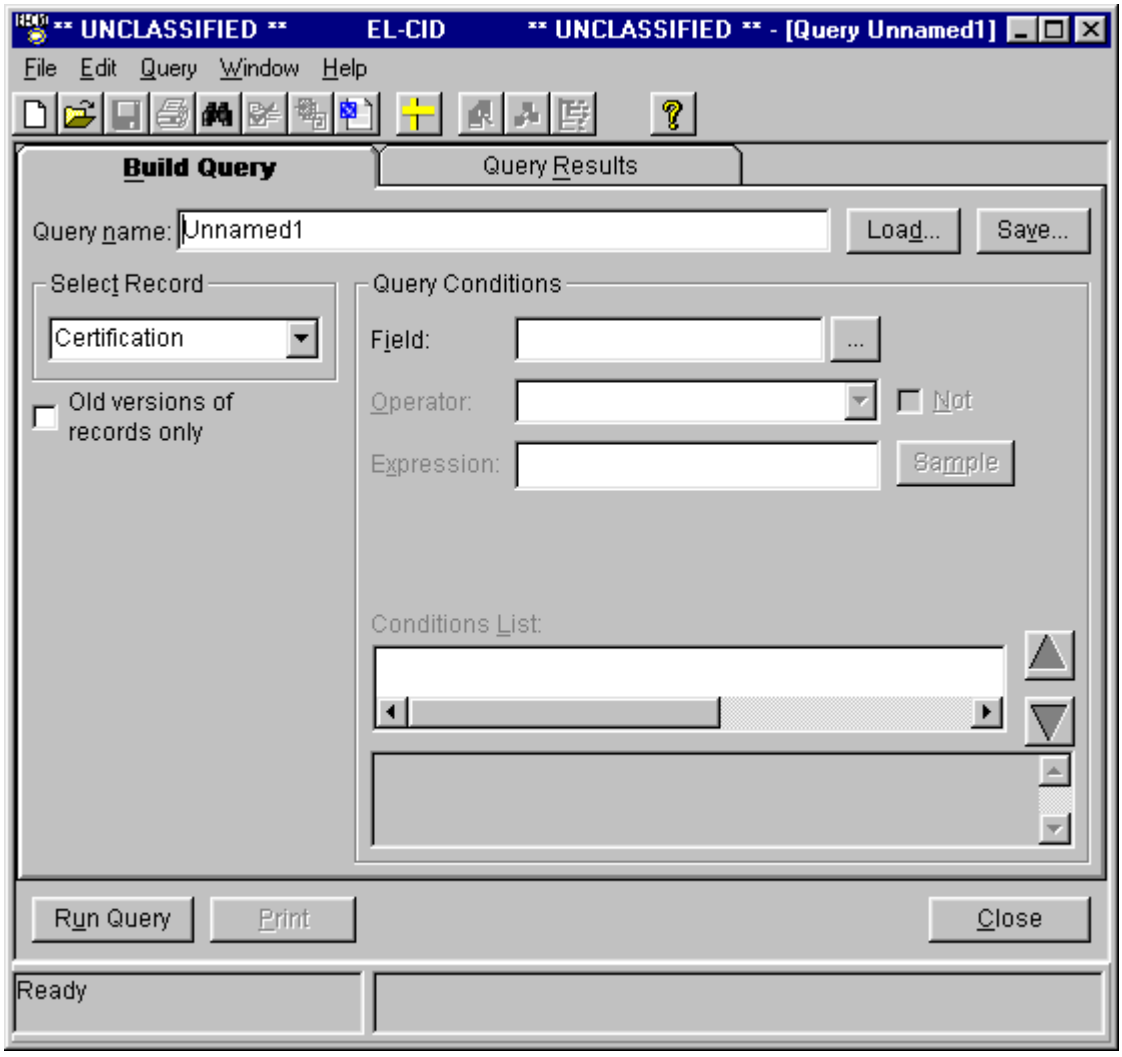
There are two techniques for emptying the database.

Technique 1 - Re-install EL-CID

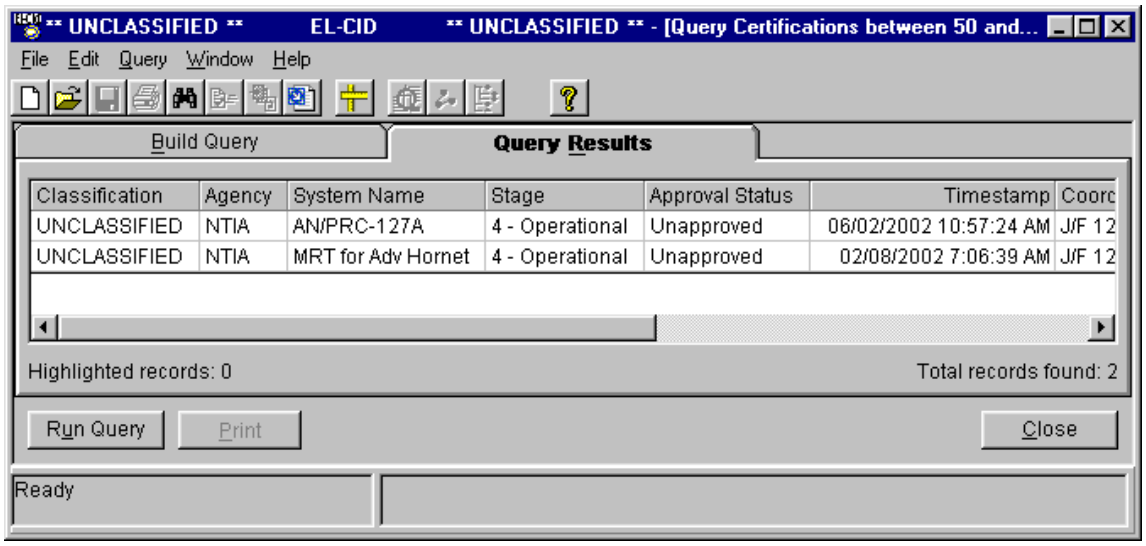
The EL-CID installation program will erase your existing database and replace it with a copy of the empty database from the install CD. When the installation program offers to run the Database Upgrade Wizard, choose No.

Technique 2 - Delete Records

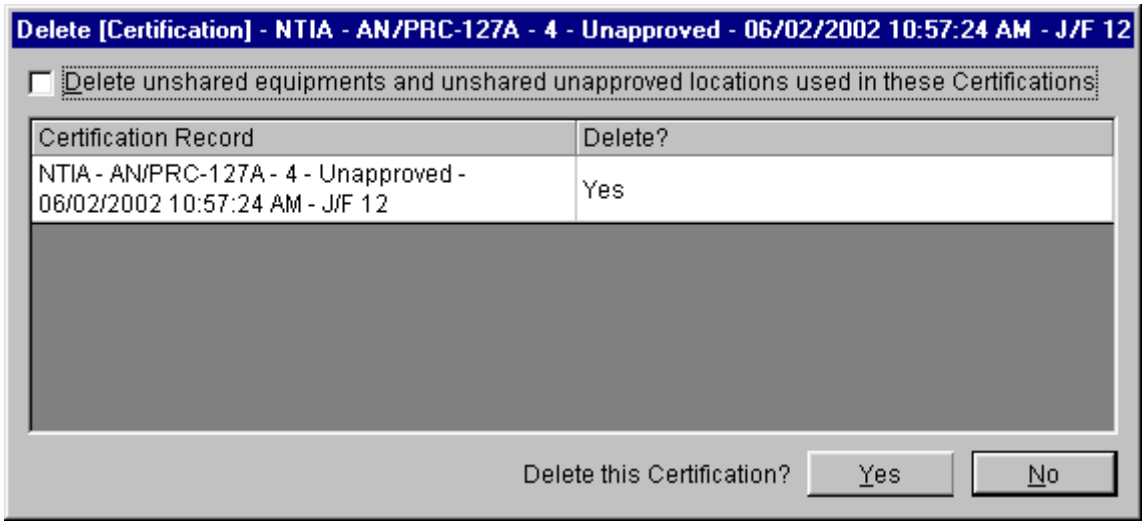
1. Select all the Certification records in the database by building a query to select Certifications, but do not enter any query conditions. Your query should look like this.



2. Run the query by clicking the **Run Query** button. The program will list all the Certifications in the database in the **Query Results** screen.



3. Highlight all the records in the **Query Results** screen by first clicking on the top record, then scroll to the bottom of the list and while holding down the **Shift** key, click the bottom record.
4. On the main menu, click **Query**, then **Highlighted**, then **Delete**. The **Delete [Certification]** screen appears.



5. Check the **Delete unshared equipments and unshared unapproved locations used in these Certifications** check box. Then click **Yes**. Be patient; the delete will take a long time, depending upon the number of records in your database.
6. Repeat Steps 1 through 5 except this time, query on Transmitters by choosing **Transmitter** in the **Select** frame of the **Query Builder** screen. Unless there are Transmitters not used in any Certifications, it is normal to get the message **No records found**.
7. Repeat for **Receiver**s and **Antenna**s.
8. Exit the EL-CID program and re-start.

Restoring Compliance Checks, Manufacturers, Policies, and Recommendations

The EL-CID install program places several export files in the Data subfolder in the EL-CID Program Folder. They are:

All Compliance Checks.cid
All Manufacturers.cid
All Policies.cid
All Recommendations.cid
All Trunking Templates.cid

You can import these files to restore the original records provided during the EL-CID install.

Keeping a History of All Records

The EL-CID program does not have a built-in capability for maintaining a history of records. However, since the program can handle multiple versions of the same record, you can maintain a separate history database using the technique described in this topic. Generally, NTIA will use this technique. See About Record IDs, Approval Status, Timestamps, and Versions for more information about record versions and Timestamps.

To use this technique, you must install a second copy of the EL-CID program. The original install becomes the "History" version and the second install becomes the "Working" version. When you perform the second install and it prompts you for the name of the install folder, change the name to something else, such as "EL-CID Working".

Note: Before performing the second install, change the name of the EL-CID icons on the Windows desktop and Start menus. To change an icon name, right-click on the icon, choose **Rename**, and type in a new name. "EL-CID History" is suggested. Upon completion of the second install, the install program will have created new icons pointing to the second installation. Right-click on these icons, choose **Rename**, and change their name to "EL-CID Working".

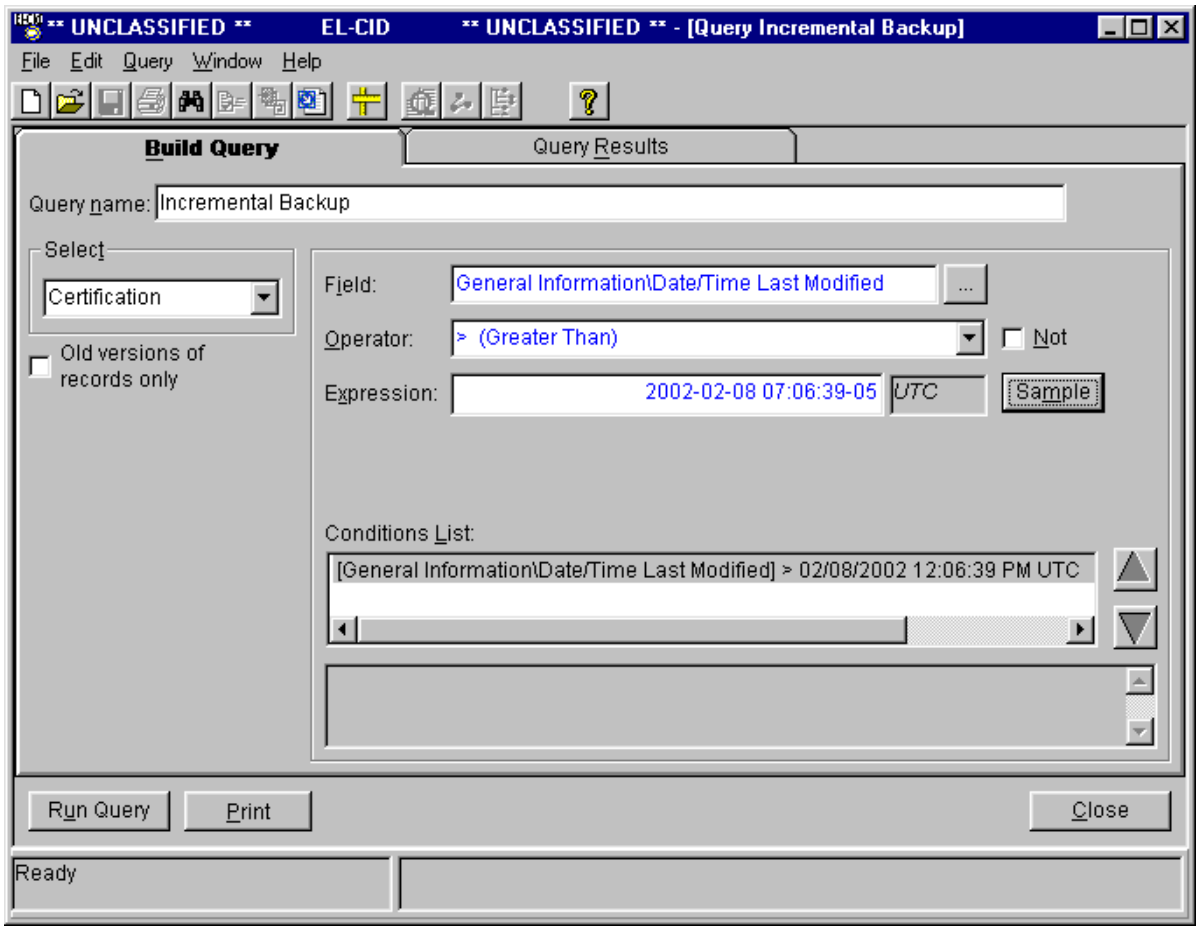
Note: If your original install contains records you want to move to the new (Working) version, export them and import into the Working version.

Whenever you want to record a history record, export the Certification from your EL-CID Working program and import it into the History version of the program. By never running the Delete Old Records option in the History version of the database, you'll keep all the history records. To create a history record, proceed as follows.

1. Start the EL-CID Working program.
2. Query on the record you want and export it.
3. Exit the EL-CID program and start the History version of the program.

   Note: You cannot run more than one version of the EL-CID program at one time.
4. Import the file you created in Step 2. If the record is marked **Skip** in the **Import Record List** screen, change it to **Add**.
5. Exit the History version of EL-CID.

Tip: You should perform these steps on a regular schedule -- say monthly. When you query on records in Step 2, you can query for all the records modified since the last time you recorded history records by querying on data item **[General Information\Date/Time Last Modified]**. Your query would look something like this.



Fill in the date you last recorded history records in the **Expression** box.

Tip: Create a folder for all your history exports, naming it "History Exports". Then, when performing the export, choose this folder as the destination for the export. When importing the history records, likewise choose the same folder. Thereafter, whenever you export and import, you can use the **Favorite Folders** combo box on the **Export** and **Import** screens to quickly locate your file.

Compliance Checks

Checking a Certification for Compliance

To be approved, a Certification application must meet standards set by the NTIA (and other national and international agencies). Most of these standards are published in the NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management (January 2000 Edition with January/May/September 2001 Revisions) -- the so-called Red Book. You can obtain a copy of the NTIA Manual on the Internet at

http://www.ntia.doc.gov/osmhome/redbook/redbook.html

EL-CID contains a powerful and flexible Compliance Check engine, which checks your records for compliance with many of these standards. The Compliance Checks are implemented as a series of SQL queries against the record. If a query returns any results, then the record is non-Compliant. There are 3 levels of non-Compliance:

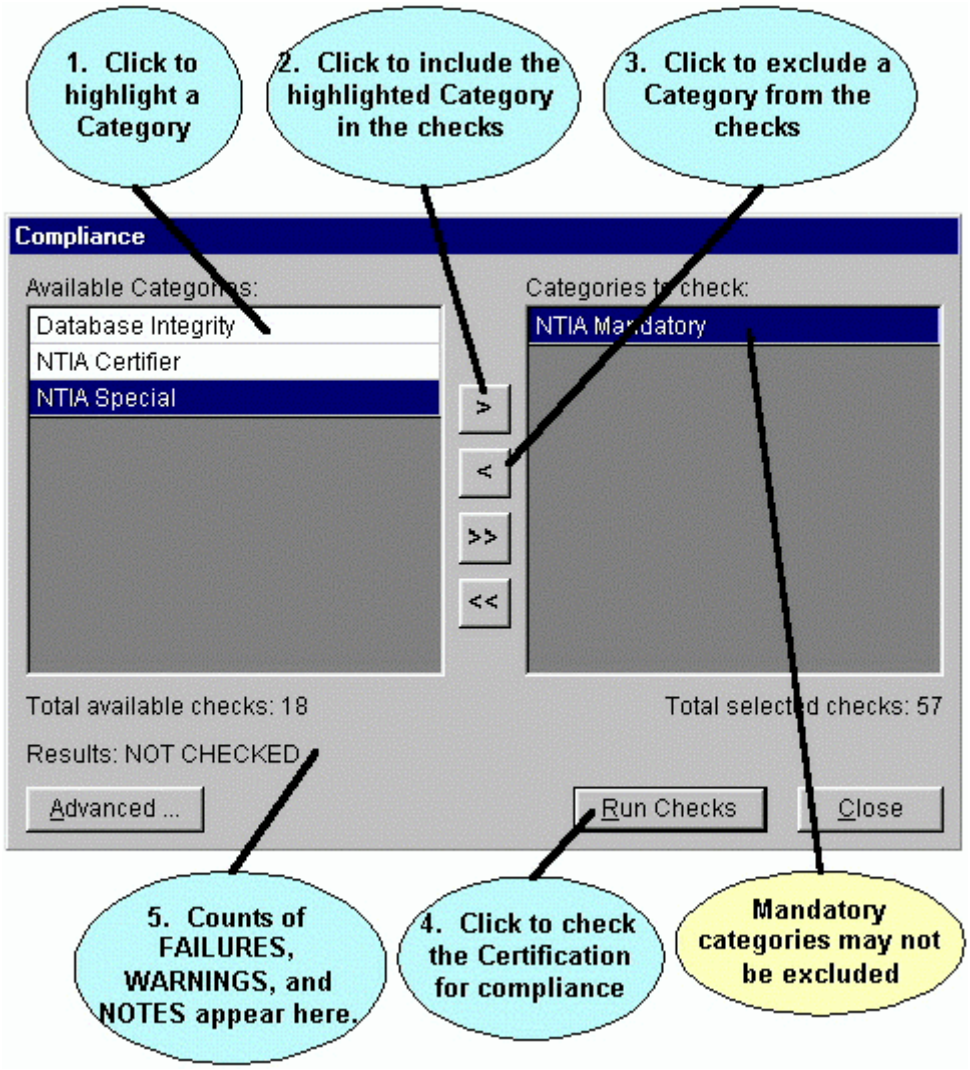
- **FAILURE**. The record is not compliant and must be fixed, or a waiver must be obtained.
- **WARNING**. The record may not be compliant or there may be some other inconsistency or error in the data.
- **NOTE**. These are messages to help you build more complete or more accurate data, but do not indicate a compliance failure.

From time-to-time, NTIA will update the Compliance Checks in EL-CID and distribute them to EL-CID users as export files, which you should import into EL-CID. See Importing Data.

To run Compliance Checks against a Certification record, proceed as follows:

1. Open the Certification record in the Tree View.
2. Click the Compliance Checks button () on the tool bar, or click **File** on the main menu, then click **Compliance Check...**.

3. The **Compliance** screen appears.

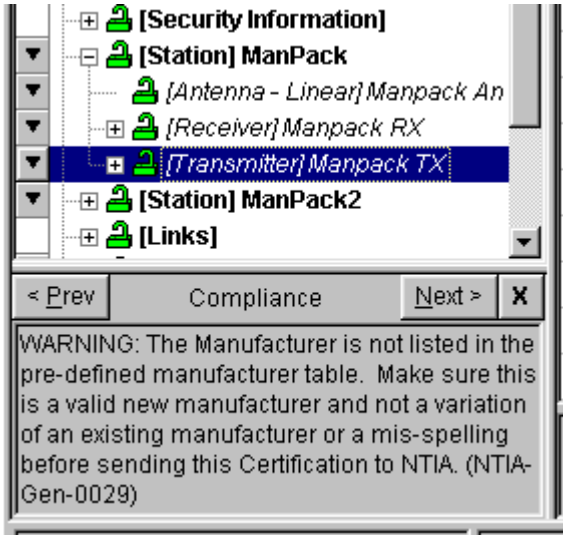


The Compliance Checks are categorized. Click the categories in the left-hand panel to highlight them and click the Include button () to include them in the checks to be run. Highlight categories in the right-hand panel you do not want to run and click the Exclude button ().

Note: Some categories are mandatory and may not be excluded.

After selecting the desired categories, click the **Run Checks** button to apply all the selected Compliance Checks against the Certification record. After a progress window, counts of the total checks that produced FAILURES, WARNINGS, and NOTES are displayed and the **Run Checks** button changes to **View Results**.

Click the **View Results** button to view all the checks. The Certification record is displayed in the Tree View along with a **Compliance** panel in the lower left-hand corner.



The program automatically highlights in italics the first node with a compliance message and displays the message in the **Compliance** panel. Click the Prev < Prev and Next Next > buttons to view the previous and next compliance messages respectively. You should make whatever changes are needed to bring the record into compliance.

Note: The compliance messages do not go away immediately after you've fixed them. Re-run Compliance to check the record after you've made all changes by clicking the Compliance Checks button on the tool bar

Note: The count of FAILUREs, WARNINGs, and NOTEs on the **Compliance** screen is not necessarily equal to the number of messages that appear when viewing the results in the **Tree View**. The counts on the Compliance screen are counts of Compliance Checks that produced one or more FAILUREs, WARNINGs, or NOTEs. A single FAILURE, for example, could be displayed several times in the Tree View if the affected data is repeated more than once in the Tree View.

When you are finished viewing all compliance messages, click the Close button in the Compliance panel X, or close the entire Tree View by clicking the **Close** button.

You can also run Compliance Checks on Certifications records from the **Query Results** screen. See Creating or Editing a Query and Performing Operations on Highlighted Records in the Query Results.

Advanced users may create their own Compliance Checks. Creating Compliance Checks requires knowledge of SQL and familiarity with the database structures in EL-CID. See Advanced Compliance Checks.

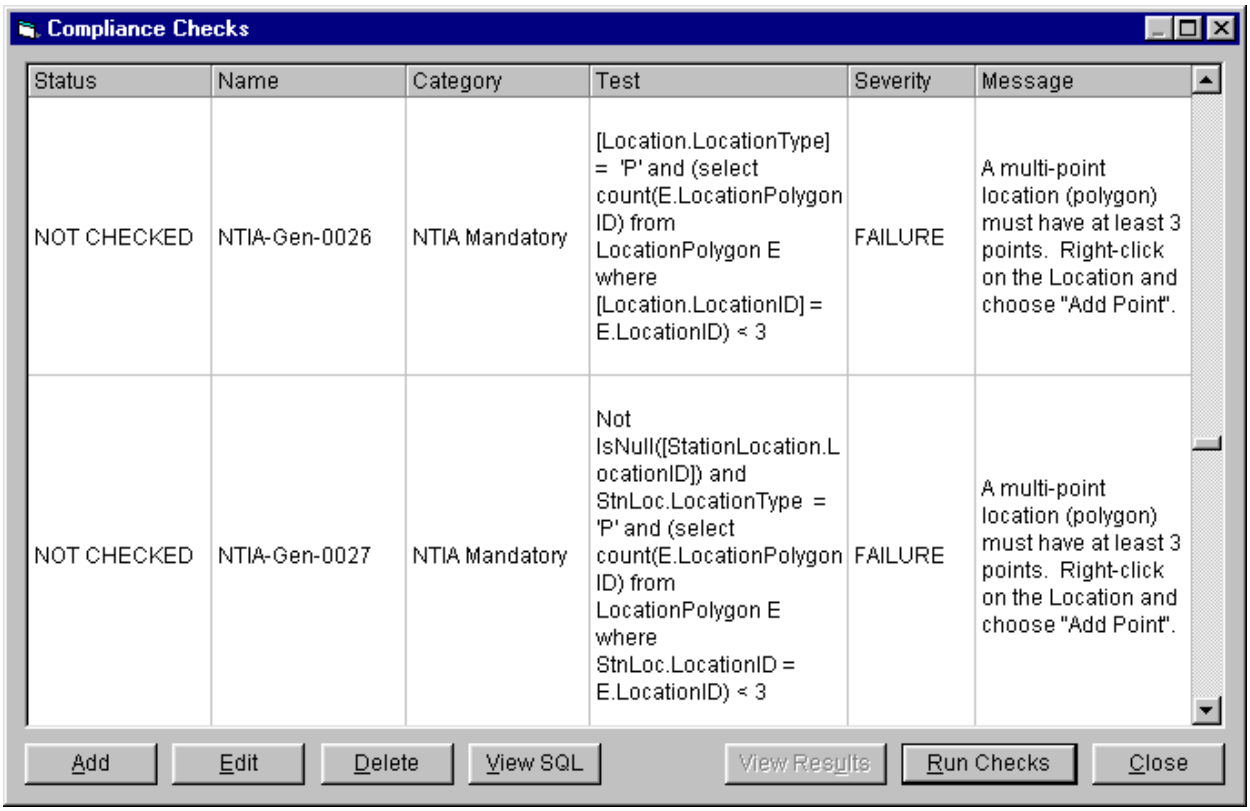
Advanced Compliance Checks

The EL-CID Compliance Check engine is a general-purpose query engine. This means that you can create your own Compliance Checks and distribute them to other users. To do that however, you must have knowledge of SQL and be familiar with the EL-CID database structure. This topic is for advanced users with this knowledge only.

Tip: Here are a couple of questions to help you determine if you are advanced enough to handle this topic: Do you know what a LEFT OUTER JOIN is? Do you know what a NULLable field is?

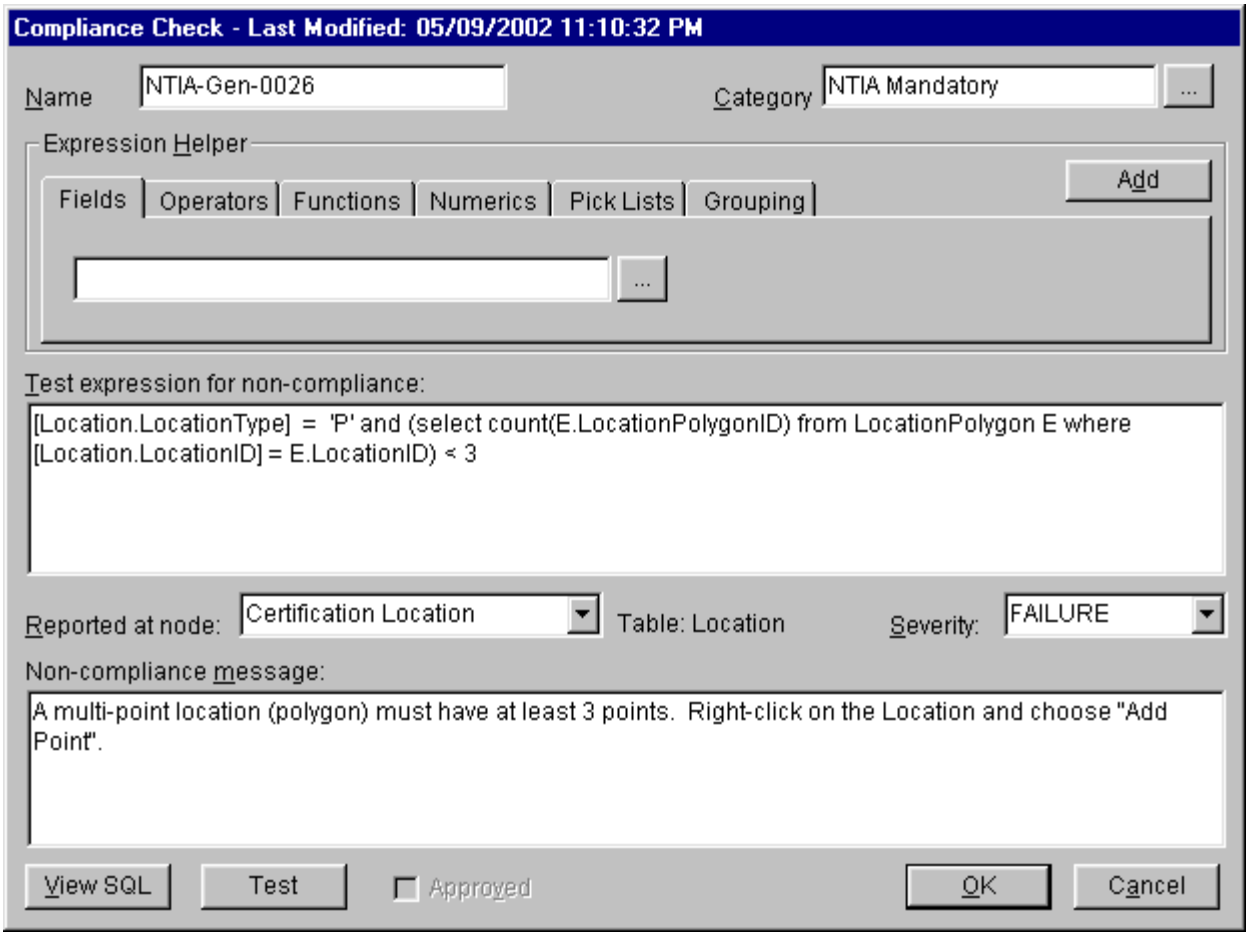
Note: If you are not a Certifier, you may not delete or modify Approved Compliance Checks.

To create or edit your own Compliance Checks, on the Compliance screen, select all the categories, then click the **Advanced** button. The **Compliance Checks** screen appears.



This screen lists all the Compliance Checks in the categories you selected -- one Compliance Check per row. Highlight any row by clicking it, then click the **Edit** button to view or modify the Compliance Check, **Delete** to delete the Compliance Check from the database, or **View SQL** to view the SQL that makes up the Compliance Check. You can also create a new Compliance Check by clicking the **Add** button or run all the checks by clicking the **Run Checks** button.

When you click the **Edit** or **Add** buttons, the **Compliance Check** screen appears.



A Compliance Check has the following mandatory elements, which are specified on this screen:

- **Name**. Uniquely identifies the Compliance Check. Appears in parenthesis in the **Tree View** when users view compliance messages.
- **Category**. Appears on the Compliance screen when users run compliance. Pick an existing category by clicking the browse button ... or create a new category by typing in its name.
- **Test expression**. Table rows which pass this SQL WHERE clause will be reported as non-compliant. The **Expression Helper** provides a number of controls to assist in constructing valid SQL. Select various elements of these controls and click the **Add** button. The chosen element is inserted into the Test expression at the cursor location, or type the expression directly. Each database field you specify in this expression should include the table name and be surrounded by square brackets. See below for more information on building valid Test expressions.
- **Reported at node**. This is the node in the **Tree View** where the message will appear when the user views non-compliance messages.

  Tip: If your Compliance Check is looking for a missing node in the tree, you cannot report it on the node that is missing; you must report it on the parent of that node. For example, if you are checking that a Station has at least one Location specified, you cannot report the error at **[Station Location]**. You must report it at **[Station]**.
- **Severity**. Choose **FAILURE**, **WARNING**, or **NOTE** from the dropdown list.
- **Non-compliance message**. This is the message the user sees in the **Tree View** when viewing non-compliance messages. You should state precisely what is wrong and how to fix it.

When all of these elements have been specified, click the **Test** button to run the Compliance Check against the current Certification record, or click **View SQL** to view the full SQL statement that is run. Click **OK** when finished editing the Compliance Check, or click **Cancel** to abandon the edits.

When you **Test** the Compliance Check, if any errors have been made by you, **SYNTAX ERROR** will be reported. You must fix whatever is wrong and Test again until you have a correct Compliance Check. The **View SQL** button will assist you at determining what is wrong.

When running a Compliance Check, the engine constructs a complete SQL statement from the elements you've specified as follows.

1. The statement begins with SELECT DISTINCT followed by a select list that returns a string consisting of the name of a field and the value of that field. The field is the internal primary key of the table corresponding to the **Reported at node**. This string is used internally within the **Tree View** to determine which instances of nodes have non-compliance messages. For example, when **Reported at node** is "Certification Location", the statement begins

   select distinct ('LocationID = ' & [Location].[LocationID]) as CplSqlKey

2. Next, the statement contains a FROM clause that performs LEFT OUTER JOINS all the way from the Certification base table (Certifications) down to the table corresponding to **Reported at node** and all the tables mentioned in the **Text expression** that are surrounded by square brackets. For example, if the Test expression contains

   [Stations.Name]

   then the engine will produce a LEFT OUTER JOIN as follows

   from (Certification left outer join Stations on Certification.CertificationID = Stations.CertificationID)

   Each table appears only once in the join clause.

3. Next, the engine scans the **Test expression**, converting all fields surrounded by square brackets into the form that the Microsoft Jet Engine understands. For example

   [Stations.Name]

   becomes

   [Stations].[Name]

4. Next, the converted **Test expression** is appended to the SQL statement as a WHERE clause.
5. Finally, the engine appends to the WHERE clause a condition to select the single Certification record being checked for Compliance.

When the engine runs the Compliance Check, any rows returned represent non-compliance. A temporary table is created in the database and the returned rows are inserted into this table. This table is used by the **Tree View** to display non-compliance messages. Each row of the table contains.

- **LogicalRecordSqlKey**. Identifies the Certification record.
- **SqlKey**. Identifies the table and record key of the node in the Tree View at which the non-compliance is reported. This is what is returned by the Compliance Check.
- **ComplianceCheckID**. The name of the Compliance Check.

Notes and Tips

1. Study the existing Compliance Checks for examples of how to properly construct a Compliance Check.
2. Entering a field in the **Test expression** without a table name will almost always produce a SYNTAX ERROR.
3. The screen does no syntax checking of the **Test expression**. It is up to you to enter valid syntax, including proper spacing, operators, function argument construction, quoting of string literals, etc.

4. If you do create a Compliance Check with errors, it will not abort the EL-CID program when the user runs it. It will simply be reported as a SYNTAX ERROR.
5. When entering the **Test expression**, you do not have to surround the field names with square brackets. However, if you mention a table in the expression and it is not surrounded by square brackets, the table may not appear in the generated FROM clause, producing a SYNTAX ERROR when the Compliance Check is run. You can overcome this by surrounding it with square brackets or you can be clever and perform a subquery within the **Test expression**. NTIA-Gen-0011 is a good example of such a case.
6. How do you know how numeric quantities and coded values are stored in the database? Answer: Use the **Expression Helper**. Pick the field on the **Fields** tab, then use the **Numerics** or **Pick Lists** tabs as appropriate and **Add** the value to the expression.
7. For most data items in the database, if the user does not specify anything, the field is stored as NULL in the database. You can tell if a field is NULLable by choosing it in the **Fields** tab of the **Expression Helper**. "NULLable" will appear in the description of the field to the right of the field selector. In this case, your **Test expression** should use the IsNull() function rather than testing for blanks.
8. To test classifications of data items, you must subquery against the Field_Supp table. NTIA-Gen-0008 is a good example of such a case.
9. Since the FROM clause uses LEFT OUTER JOINs, the **Test expression** must test for non-NULL key fields before testing other fields in tables. NTIA-Gen-0001 is an example of such a case.
10. For some tables, there is more than one relational join path from the Certifications base table to the target table. The Compliance Check engine will pick the main path as defined in the EL-CID dictionary. To generate the proper join via alternate paths, you have to use a subquery. NTIA-CH10-7.4.03 is a good example of how to do this.

Queries

Creating or Editing a Query

You can create queries to select records from the EL-CID database. The records returned will be one of nine types:

- Certifications
  Transmitters
- Receivers
- Antennas
- Locations
- Compliance Checks
- Manufacturers
- Policies
- Recommendations

A query consists of one or more query conditions. Each query condition consists of a data item field, an operator, and an expression (or expressions). You can query for records based on any data item that is collected in EL-CID. Queries will return a list of the records that meet the query conditions you specify.

From the query results, you can highlight records and perform the following operations:

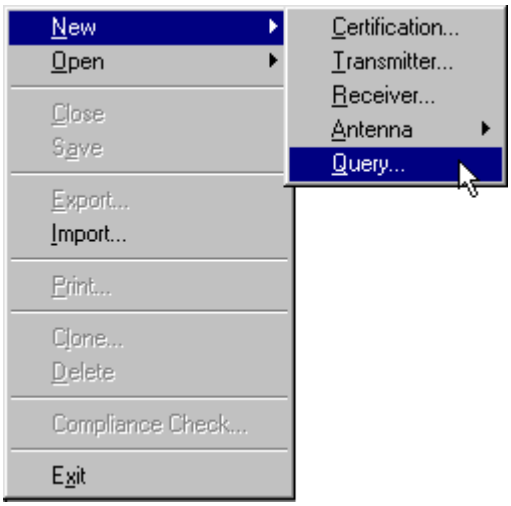
- Edit a record in the Tree View.
  Delete a record.
- Clone a record, i.e., make copy of a record.
- Print a record.
- Compare any two records for differences.
- Export one or more records to a disk file.
- Find similar versions of any record.
- Find all Certifications that use a single equipment or Location record.
- Replace a single equipment record with another equipment record in all Certifications that use the equipment record.

Notice that there are operations you can perform with query results that are not available anywhere else in the program.

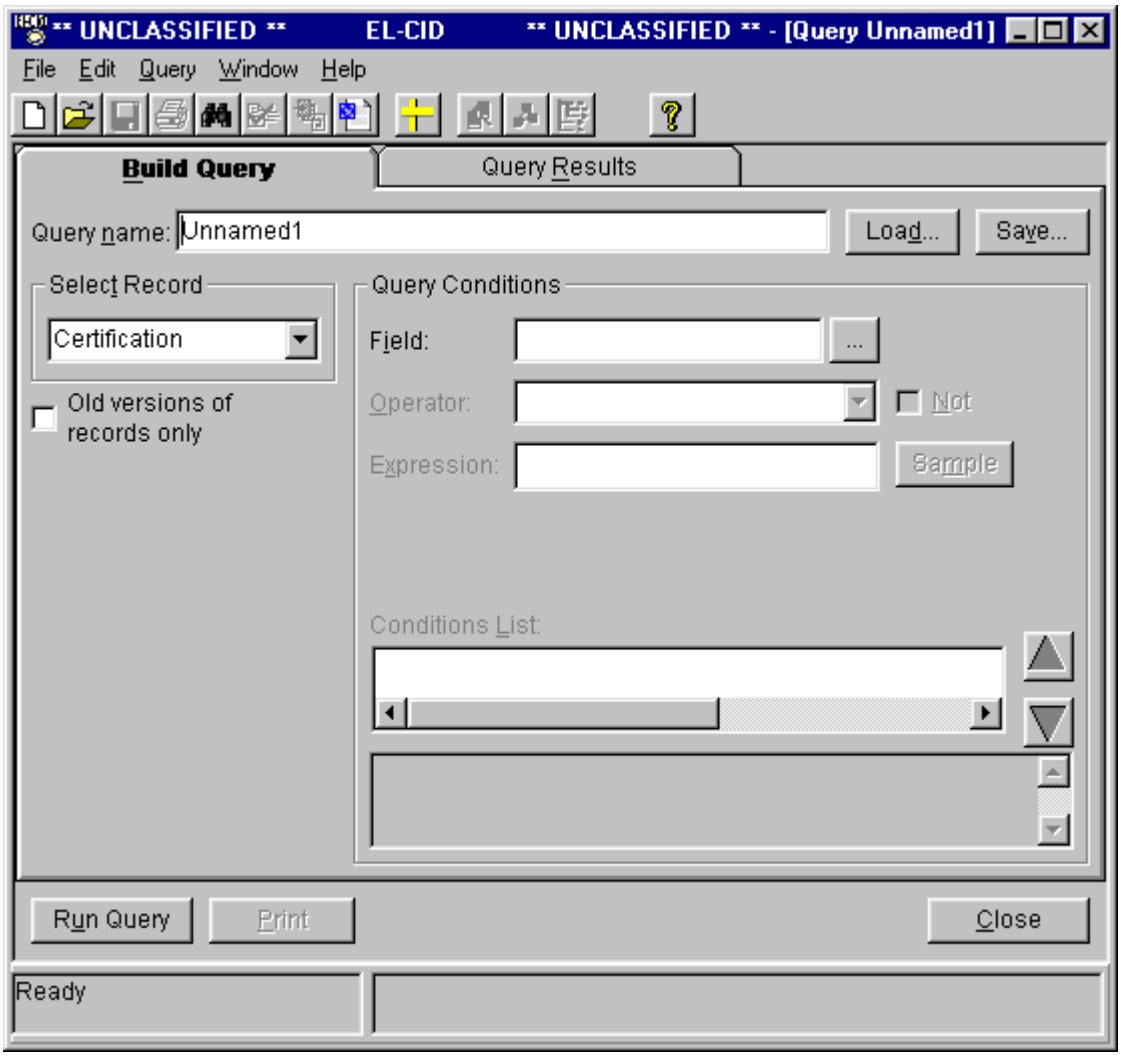
The paragraphs below describe how you can create a new query, edit an existing query, save queries to disk, load saved queries, or print queries. When you finished building the query, you can run the query to select the desired records and then perform the operations listed above in the Query Results.

Creating a New Query

To create a query, click the New Query button  on the tool bar, or click **File** on the main menu, then **New**, then **Query**.



The **Build Query** screen appears.



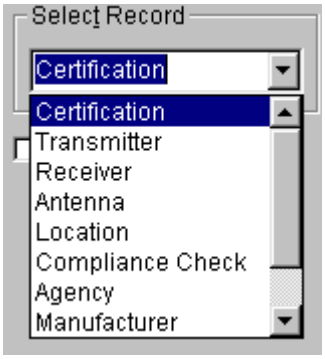
You next create one or more query conditions in the **Query Conditions** frame. See Entering a Query Condition To add additional conditions to your query, see Complex Queries.

Give your query a meaningful name by typing the name into the **Query name** text box. This name appears in the title bar of the program when the **Build Query** or **Query Results** screens are active and also appears in the **Window** menu.

You can open more than one query at a time and switch back and forth between them in this way.

Choosing What to Select

Choose the type of records you want the query to return by clicking the down arrow in the **Select Record** frame and choosing a record type in the list that drops down:



Depending upon the Data Item Fields you specified in your query condition(s), the program will interpret those conditions with respect to the record type as follows:

Certifications. Any conditions on fields that are part of a certification itself (not equipments) select certification records meeting those conditions. For conditions on equipment and Locations fields, selects certifications having any equipments or Locations meeting those conditions.

Transmitters. For conditions on transmitter fields, selects transmitters meeting those conditions. For conditions on certification fields, selects transmitters used in any certification meeting those conditions. Conditions on receiver or antenna or Location fields are automatically deleted from the query.

Receivers. For conditions on receiver fields, selects receivers meeting those conditions. For conditions on certification fields, selects receivers used in any certification meeting those conditions. Conditions on transmitter or antenna or Location fields are automatically deleted from the query.

Antennas. For conditions on antenna fields, selects antennas meeting those conditions. For conditions on certification fields, selects antennas used in any certification meeting those conditions. Conditions on transmitter or receiver or Location fields are automatically deleted from the query.

Locations. For conditions on location fields, selects locations meeting those conditions. For conditions on certification fields, selects locations used in any Certification meeting those conditions. Conditions on transmitter or receiver or antenna fields are automatically deleted from the query.

Compliance Checks. For conditions on Compliance Check fields, selects Compliance Checks meeting those conditions. Conditions on other fields are automatically deleted from the query.

Manufacturers. You may create conditions only on the Manufacturer and Manufacturer Code fields. Conditions on other fields are automatically deleted from the query.

Policies. You may create conditions only on the Policy and Reference fields. Conditions on other fields are automatically deleted from the query.

Recommendations. You may create conditions only on the Recommendation field. Conditions on other fields are automatically deleted from the query.

Saving a Query to Disk

To save a query to disk for use another time, first be sure to give your query a meaningful name in the **Query name** box. Then click the **Save** button or click **Query** on the main menu, then **Save**. A standard Windows file save screen appears. By default, this dialog starts in the \User\Query subfolder of the EL-CID program folder. Enter a file name or select an existing file to replace and click the **Save** button. The query is saved to disk in the file you specified.

Note: Saving a query saves the query conditions and type for running at a future time; not the query results (records).

Tip: You can use the **Save** option to create query templates for future use. Just leave the **Expression** box empty or enter instructions, such as "Type in a nomenclature here." Give your template a meaningful **Query name**. When you save the template, the **Query name** will be the default file name.

Loading an Existing Query from Disk

You can load a saved query from disk in one of two ways:

1. If the **Build Query** screen is already open, click the **Load** button or click **Query** on the main menu, then click **Load**. In the standard Windows file open dialog that appears, select an existing file name and click **Open**. Note that loading a query from disk will erase all existing query conditions from the **Build Query** screen.
2. If the **Build Query** screen is not already open, click **File** on the main menu, then **Open**, then **Query**. Proceed as above.

Tip: EL-CID comes installed with some pre-defined query templates. To save time, you can load any of these templates into the **Query Builder** screen, enter values you are looking for in the **Expression** box, and run the queries.

Printing a Query

You can print a query. Note that this does not print the query results; it prints the query conditions making up your query. This is a convenient way to share your queries with other users. To print a query, from the **Build Query** screen, click **Query** on the main menu, then click **Print**. A standard Windows Print dialog appears for you to select a printer device. Click **Print** to send the query printout to the printer.

Editing an Existing Query

See Complex Queries.

Obtaining Query Results

To run your query and select the records meeting your query condition(s), see Running a Query.

Entering a Query Condition

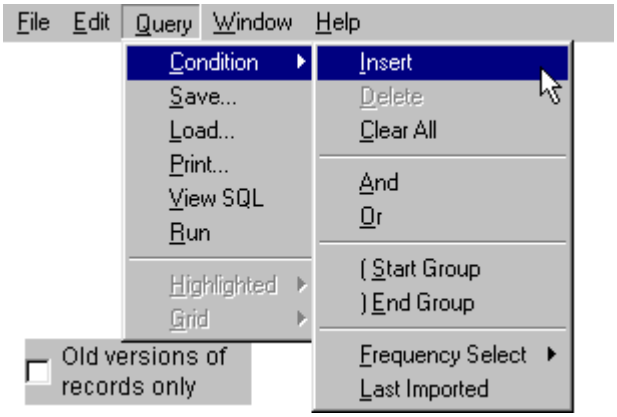
Query Conditions are entered in the **Build Query** screen. See Creating or Editing a Query.

The steps for entering a new query condition or editing an existing query condition are

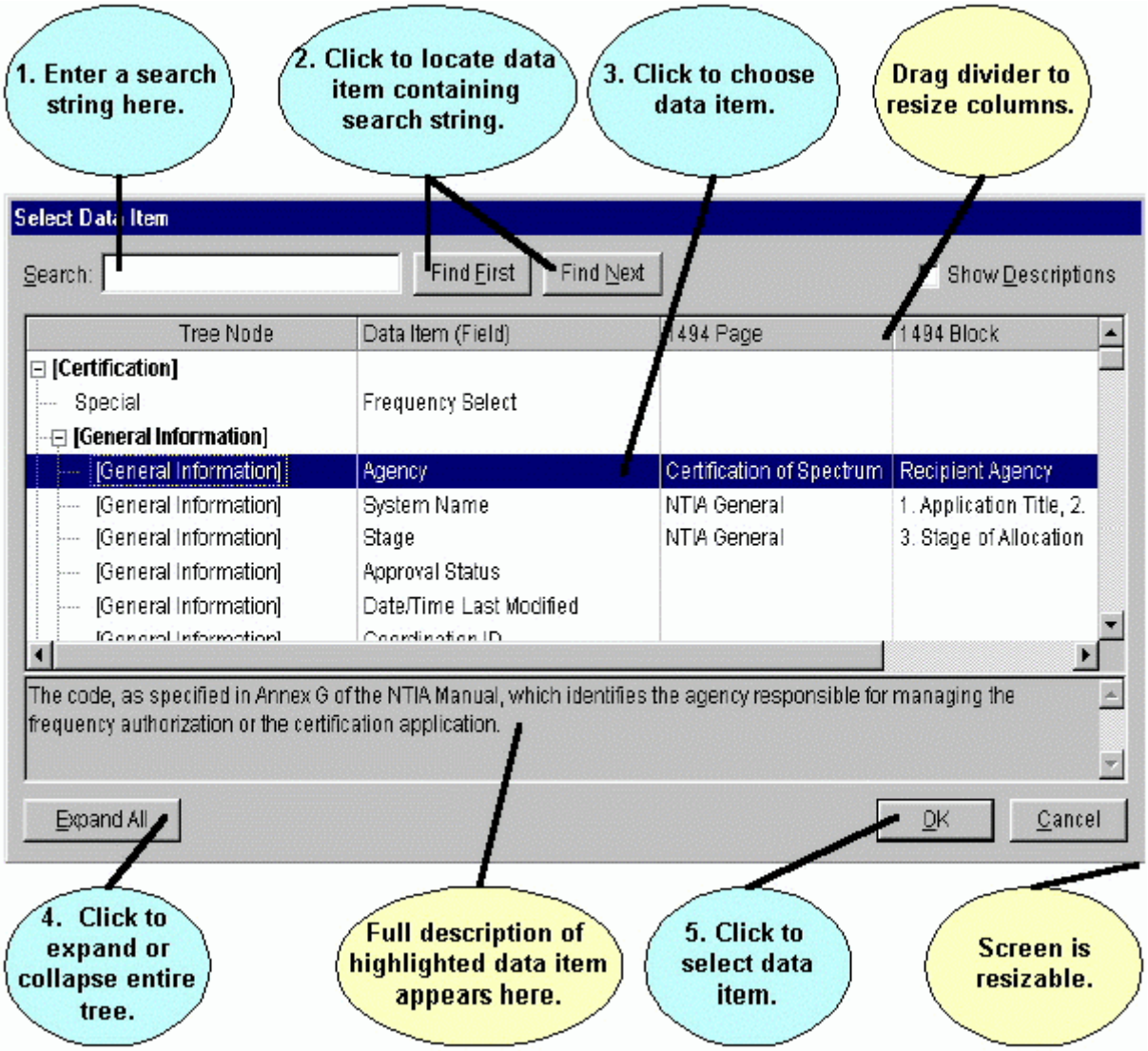
1. Choose a Condition Data Item.
2. Choose a condition Operator.
3. Enter a condition Expression or expressions.

Choosing a Condition Data Item

When creating new queries, the query builder assumes that you wish to enter the first query condition, so the **Select Data Item** screen immediately appears overlayed on top of the **Build Query** screen. (You can turn the automatic display of the **Select Data Item** screen off in the Preferences.) When editing an existing query condition, click the **Field** box or the browse button  to the right of the **Field** box. To add a new query condition, click **Query** on the main menu, then click **Condition**, then **Insert**.



The **Select Data Item** screen is displayed.



Tip: You can select all records in your database of a specified type by entering no query conditions. If that is what you wish to do, dismiss the **Select Data Item** screen immediately by clicking the **Cancel** button, select the type of records you wish to retrieve in the **Select** frame, then run the query by clicking the **Run Query** button.

The **Select Data Item** screen displays all the queryable data items of the database in a tree-like outline. The items are generally listed in the same order as they appear in the Tree View. To start with, the nodes of the tree are collapsed. To expand a node, double-click on a node, or click the expand button ⊞, or, to expand all the nodes of the entire tree, click the **Expand All** button. To collapse a node, double-click the expanded node, or click the collapse button ⊟.

To help you find a data item, enter a search string in the **Search** box and click the **Find First** and **Find Next** buttons. For example, if you enter "harmonic" in the search box and click Find First, the [Harmonic] node is highlighted. Click Find Next and the Harmonic Number item is highlighted. Searches are case-insensitive. Searches include the 1494 columns and descriptions of all items.

To query on a data item, double-click the data item, or click the data item once and click the **OK** button. The selected data item will appear in the **Field** box on the **Build Query** screen.

Note: If you hear an audible bell, the item you have selected is not queryable. Only individual data items are queryable. Nodes that expandable, such as **General Information**, are not queryable.

Note: If you choose the data items entitled "Frequency Select" or "Geographic Select", special screens appear. See Entering a Frequency Query Condition and Entering a Geographic Select Query Condition.

Choosing a Condition Operator

Select the down arrow key  in the **Operator** box to display the Operator Symbols pick list. Click once to select an operator from the pick list. (The default operator is **== (Exactly Equals)**.)

These Operator Symbols are used to make the query condition perform in various ways:

== (Exactly Equals) - Used to find data that exactly matches the listed condition expression.

= (Equals) - Used to perform a string search. The program will select any field with data that "begins with" the expression entered.

<> (Not Equal) - Used to find all other data except the listed expression. The program will select any field with data that "does not begin" with the listed expression.

< (Less Than) - Used to find all data having a lesser value than the listed expression.

> (Greater Than) - Used to find all data having a greater value than the listed expression.

<= (Less Than or Equals) - Used to find all data having a lesser value than or equal to, the listed expression.

>= (Greater Than or Equals) - Used to find all data that has a greater value than or equal to, the listed expression.

Missing (blank) - Used to find data items that have not been specified or left blank. (e.g. [Transmitter\Manufacturer] Missing (blank) means: Find records having ANY transmitter with a blank Manufacturer." Records having no transmitters will not be selected. Records having transmitters but all transmitters have a non-blank Manufacturer will not be selected. To be selected, a record must have one or more transmitters and one or more of those transmitters must have a blank Manufacturer.)

Not Exists - Used to find records that do not have any occurrences of the specified data item. (e.g., [Transmitter\Manufacturer] Not Exists means: Find records having no transmitter Manufacturer. This will include records having no transmitters as well as records in which ALL transmitters have blank Manufacturer. If a record has ANY transmitter with a Manufacturer that is not blank, the record will not be selected.) Contrast with **Missing (blank)**.

In (In Set) - Used to match the beginning characters of the selected data field from a list of one or more expressions. (e.g., Agency In Set AF, NT means: Find records that have an Agency beginning with either AF or NT; Air Force and NTIA records would be found.). Think of In Set as a multiple Inexact Equals.

.. (Between) - Used to find all data within the range of the listed expression.

$ (Contained In) - Used to match a record's data within a string of characters entered. Multiple entries are allowed. (e.g., Manufacturer Contained In Acrodyne or Acrodyne Industries Inc. would find records with manufacture Acrodyne, Industries Inc).

$$ (Contains) - Used to perform a string search of the field that contains the listed expression. Matches records that contain the expression string anywhere in the record's field. E.g., Location Name Contains TEXAS means: find Location Names entries containing the string TEXAS anywhere in the field.

Click the **Not** check box to find records that do not meet the stated query condition (e.g., Not Between or Not Exactly Equals).

Entering a Condition Expression

Enter an expression to query on in the **Expression** box. Depending upon the data item you've selected and the operator, the Expression box will change its appearance and function. When the operator is not one of the following operators

= Equals
Missing (blank)
Not Exists
$ (Contained In)
$$ (Contains)

the Expression box will appear the same as it does in the Tree View. For example, if performing an Exactly Equals query on data item Station Name, the Expression box will appear as a text box with a Sample button to the right

Type the Station Name you desire in the text box, or click the **Sample** button to get a list of existing Station Names in your database.

When performing an **Exactly Equals** query on a data item that has a fixed pick list of values such as Stage, the Expression box will appear as a pick list. The **Sample** button is disabled in this case because 1 of only 4 possible values is possible and they are already listed in the pick list.

Click the down arrow key  and choose one of the values from the pick list.

When performing an **Exactly Equals** query on a numeric data item with associated units, for example Temporary Power Level, the Expression box will appear with a text box, a units selector, and a Sample button.

Click the units selector and choose the units you want to use for entering the expression, then type in the value you want, or use the **Sample** button to select an existing value from your database.

Note: The units you choose only affects how you enter the value of the expression; it does not restrict the query to the specified units. For example, if you enter 500 milliwatts, records with .5 Watts will be selected.

When performing an **Exactly Equals** query on a data item whose values come from your database, such as Manufacturer, the Expression box will appear with a browse button next to it so that you can choose the value from the list of available manufacturers in your database.

Click the browse button  and select a manufacturer from the list that appears, or click the **Sample** button and choose a manufacturer already used in your database.

When performing a query with one of the following operators

Missing (blank)
Not Exists

the Expression box will be disabled (grayed).

When performing a query with one of the following operators

= Equals
$ (Contained In)
$$ (Contains)

the Expression box will appear as a simple text box, regardless of the data item you are querying on. This permits you to enter any string you wish.

Note: Depending upon the data item you've selected, the expression you enter may result in a meaningless query, in other words, no records will be returned. For example, the inexact Equals condition

[Stage] = 1 - Conc

will not select any records, even though there might be records in your database with a Stage of 1 - Conceptual. The **= Equals**, **$ (Contained In)**, and **$$ (Contains)** operators are usually meaningful only when querying on data items that are entered as text, such as System Description. If you normally enter a data item as a numeric value with units, or using a pick list, don't use these operators. To determine if these operators are meaningful for a data item, temporarily change the operator to **== Exactly Equals**. If the Expression box changes to a pick list or units type, these operators are not appropriate.

Note: Upper- and lowercase matters in expressions. The condition

[System Description] = LAND

will not select a record whose System Description begins with "Land".

Tip: An apostrophe (') can be used in the Expression dialog box to keep trailing blanks from being trimmed on the field being tested. For example the condition:

[System Description] = ' Land '

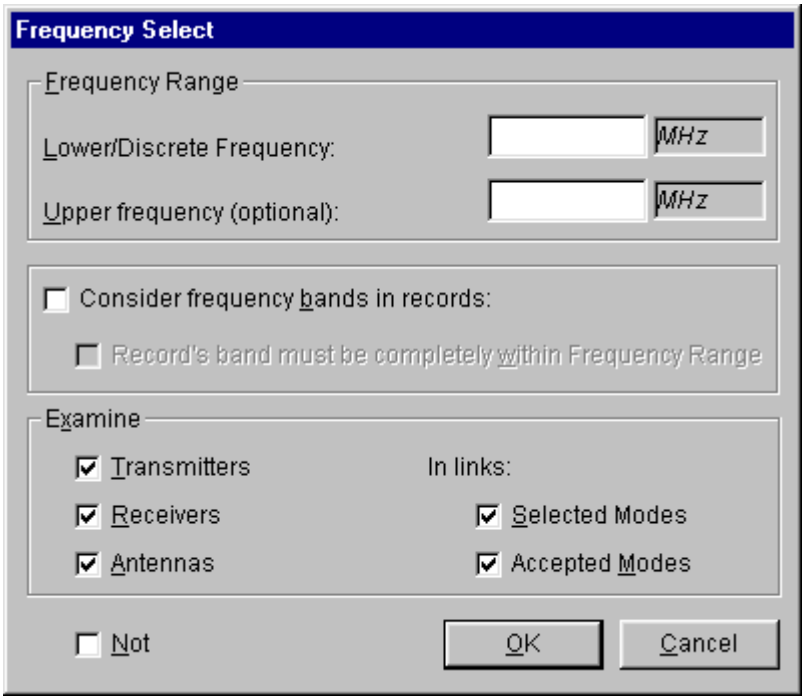
would select a record with a System Description starting with "Land Mobile" but would not select a record starting with "Landing Craft", because the "i" does not match the space after "Land".

The apostrophe can only be used on character fields.

See Advanced Queries for more tips on querying on blank.

Entering a Frequency Query Condition

You can query records on frequency by creating a Frequency Select condition. This condition will find records having frequencies with a specified frequency or range of frequencies. To create a Frequency Select condition, choose **Frequency Select** in the **Select Data Item** screen, or click **Query** on the main menu, then **Condition**, then **Frequency Select**, and finally **Insert**. The **Frequency Select** screen appears.



If a single frequency is being queried, enter the discrete frequency in the **Lower/Discrete Frequency** dialog box. If a range of frequencies is desired, entered the lower limit of the range in the **Lower/Discrete Frequency** box, and enter the upper limit of the range in the **Upper frequency** box. Ensure that the upper frequency is greater than or equal to the lower frequency.

Frequencies can be entered in a variety of units. Click the units selector, and a list of available units will be displayed.

Note: Choose units first, then enter the frequency. If you enter the frequency first, then change the units, the program will convert the displayed value to the new units.

No matter what unit is used on the Frequency Select screen, the frequency values will be displayed on the **Build Query** screen according to the rules in MCEB (Military Communications-Electronics Board) Pub. 7 (e.g., K32000 will be displayed as M32).

Tip: When entering frequencies, you can use the standard MCEB format as a shortcut to entering the value and units. For example, entering K50, will enter a value of 50 and select kilohertz, regardless of the current units selected. Use a T for terahertz, G for gigahertz, M for megahertz, K for kilohertz, or H for hertz. The units may precede or follow the number. K50 and 50K are both valid.

Tip: You can use scientific notation for most numeric quantities. For example, to enter a frequency of 12000, you would enter 12E3.

To find records that have a frequency band that overlaps the frequency range criteria, click the **Consider frequency bands in records** check box. Once this check box has been checked, the **Record's band must be completely within Frequency Range** check box is enabled. Check this box to limit the search to records that have a frequency band that falls entirely within the input frequency band.

To find all records that do not meet the frequency range criteria, click the **Not** check box (e.g., find all records that have frequencies that are Not in the frequency range specified).

Choose which frequency data items in the record are to be considered in the **Examine** box. Check all the items that apply.

Note: The **Examine** box is only enabled when selecting Certification records.

Depending upon the type of records you are selecting, a Frequency Select condition will select records as follows:

- **Certifications**. Selects Certification records having any equipment that meets the Frequency Select condition, including any transmitter or receiver (if checked) with a fixed frequency meeting the condition, or any transmitter or receiver (if checked) with a tuned frequency meeting the condition, or any antenna (if checked) with an Upper or Lower Frequency Limit meeting the condition, or any Selected Mode (if checked) with a fixed or tuned frequency meeting the condition, or any Accepted Mode (if checked) with a fixed or tuned frequency meeting the condition. (Selected Modes are specified on the Link Information screen. Accepted Modes are specified by the Certifier on the Operating Characteristics and Recommendations screen.)
- **Transmitters**. Selects transmitters having a fixed frequency meeting the condition or any transmitter with a tuned frequency meeting the condition.
- **Receivers**. Selects receivers having a fixed frequency meeting the condition or any receiver with a tuned frequency meeting the condition.
- **Antennas**. Selects antennas having a Lower and Upper Frequency Limit meeting the condition.

Click **OK**, after entering the frequency select criteria.

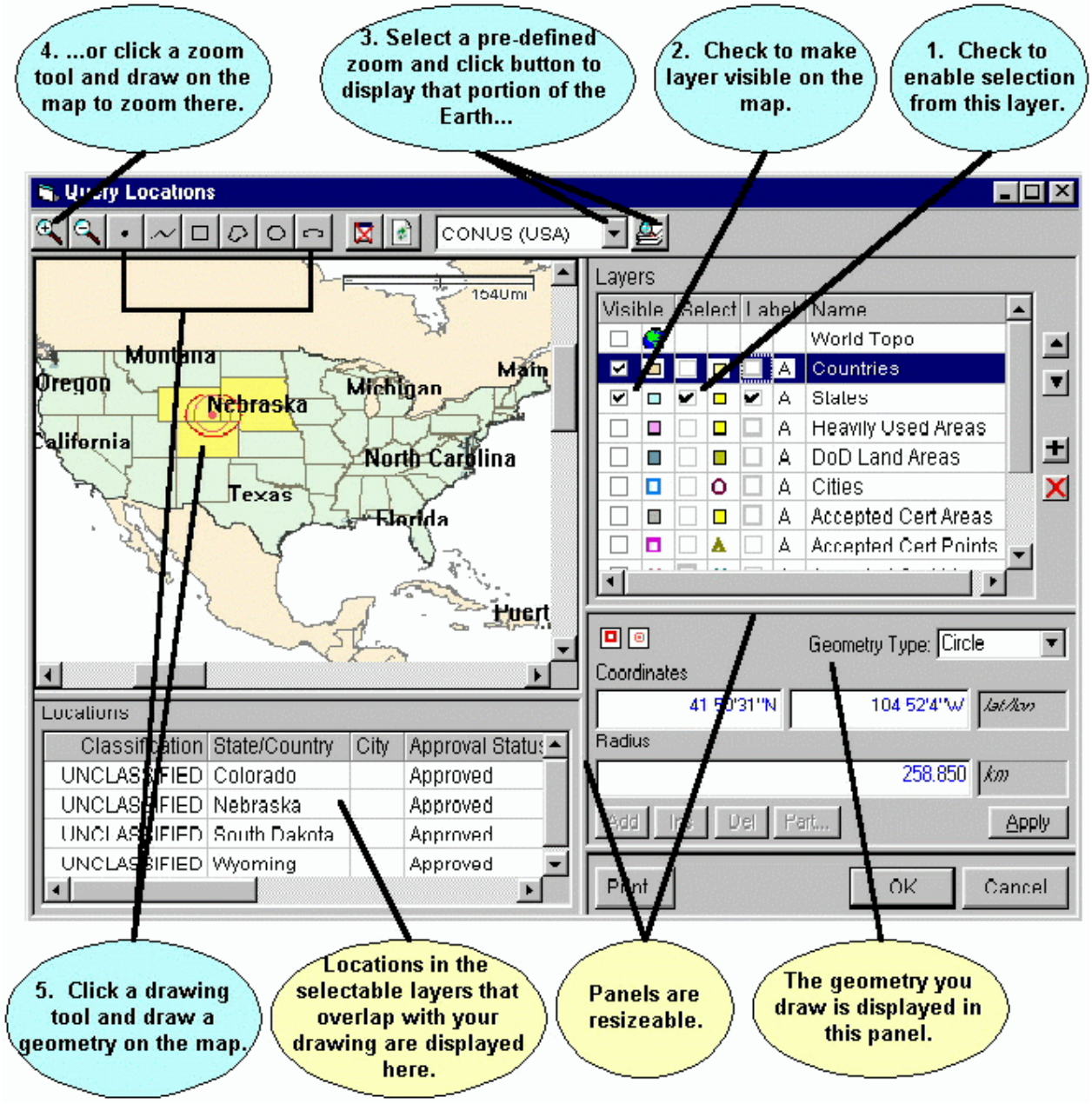
See Choosing What to Select for more information on choosing the type of records to be selected.

Entering a Geographic Select Query Condition

You can query Certification and Location records geographically by creating a Geographic Select condition. This condition will find records having Locations that overlap (or touch) a geometry you draw on a map.

Note: You may only create a Geographic Select condition when building a query to find Certification or Location records. Geographic Selects cannot be used to query on equipments (Transmitters, Receivers, and Antennas). See Choosing What to Select for more information on choosing the type of records to be selected.

To create a Geographic Select condition, choose **Geographic Select** in the **Select Data Item** screen, or click **Query** on the main menu, then ***Condition***, then **Geographic Select**, and finally **Insert**. The **Query Locations** screen appears.



On this screen you will

1. Choose the layers whose Location records will be considered in the query, and
2. Draw a geometry.

When you run your query, records having Locations that overlap (or touch) this geometry and are in one of the layers you chose will be selected by the query.

The screen consists of 4 resizable panels -- the map itself in the upper left panel, the **Layers** legend in the upper right panel, a **Locations** grid in the lower left panel, and a **Geometry** editor in the lower right panel. To create the Geographic Select condition, proceed as follows:

1. In the **Layers** legend (upper right), check the box in the **Select** column next to the layers you want considered in the query. For example, to select records having Locations in the States layer, check the box in the **Select** column to the left of **States**. You can check more than one layer.
2. Check the box in the **Visible** column next to the layer (if not already checked) to make the layer display on the map. You may also check the box in the **Label** column to cause the map to display the names of Location records.
3. In the tool bar at the top, select a pre-defined zoom area 

by clicking the Down Arrow button  , then click the Zoom button  to zoom the map display to that area.
4. You can also zoom the map display by clicking the Zoom In button  or Zoom Out button  , then draw on the map to zoom. To draw a zoom rectangle on the map, hold the mouse button down at one corner of the rectangle and drag the mouse to the other corner.
5. Click a drawing tool in the tool bar at the top and draw on the map to create a geometry. The drawing tools you may use are:
   -  Draws a single point. Click once on the map to draw the point.
   -  Draws a line. Click on the map, then click a second point on the map. A line is drawn from the first to the second point. Continue clicking on the map to draw additional line segments. To finish drawing, double-click the last point.
   -  Draws a rectangle. Hold down the mouse button down at one corner of the rectangle. Drag the mouse to the opposite corner of the rectangle and release the mouse button.
   -  Draws a polygon. Click the first point of the polygon somewhere on the map. Click the second point. Click the third point. Continue clicking points of the polygon. To finish drawing, double-click the last point of the polygon. Polygons must have a minimum of three points.
   -  Draws a circle. Hold down the mouse button at the center of the circle. Drag the mouse in any direction to define the radius of the circle. Release the mouse button when the mouse cursor is at the desired radius. Note that, unless you are at the equator, the drawn circle is replaced by an ellipse because of the distortion introduced by projecting spherical coordinates onto a flat display. The ellipse will pass through the point at which the mouse cursor is pointing when you release the mouse button.
   -  Draws an ellipse. Hold down the mouse button at one edge of the ellipse. Drag the mouse in any direction to define the other edge of the ellipse. Release the mouse button when the desired elliptical shape is obtained.

   The geometry of your drawing is displayed in the **Geometry** panel at the lower right corner. You can fine-tune the drawing by manually entering coordinates here. For example, to move the center point of a circle, click the **Coordinates** box and enter a new latitude and longitude. To change the radius of a circle, click the **Radius** box and enter a new radius. You can also use the mouse to fine-tune the drawing geometry. Click the **Coordinates** box to give it focus, then click

on the map. The center point of the circle changes to the point on the map where you clicked. To change the radius, first click the **Radius** box to give it focus, then click on the map. The radius of the circle changes from the center point to the point where you clicked. To aid you, the **Coordinates** and **Radius** boxes dynamically update as you move the mouse across the map. If you move the mouse off the map without clicking, they return to their original values.

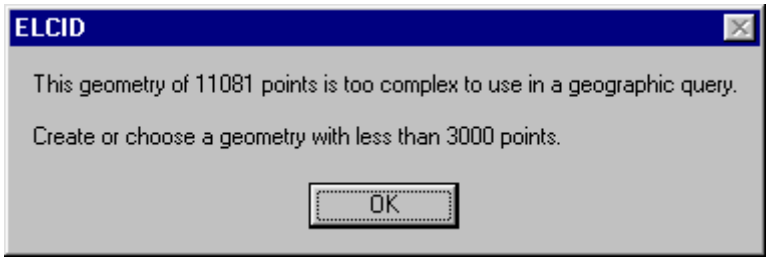
Note: To start a new drawing, you must click one of the drawing tool buttons in the tool bar.

Once you've drawn on the map, Location records are shaded on the map (defaults to yellow, but this can be customized) To be shaded, Location records must overlap (or just touch) your drawing geometry and they must be in a layer with the **Select** box checked in the **Layers** legend. The shaded Location records are also listed in the Locations grid at the lower left corner of the screen.

Note: When you draw on the map, the Location records listed in the grid are not the records your final Query will find. They are Location records that overlap your drawing geometry. If you are building a query on Certifications, any Certification records containing any of these Locations will be found by the Query.

6. (Optional). You may click on a Location record in the **Locations** grid. When you do this, the drawing geometry changes to the geometry of that Location record. Your Geographic Select condition will now use this geometry to perform the query, rather than the one you drew.
7. Click **Cancel** to abandon entering the Geographic Select condition, or click **OK**. The **Query Locations** screen disappears and the **Query Builder** screen reappears. The geometry and the names of the layers with the **Select** box checked are displayed in the **Conditions List** box.

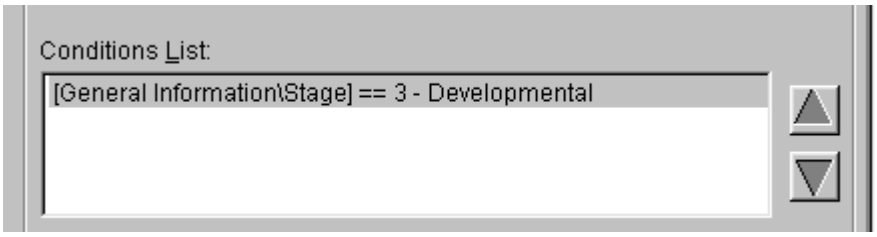
Note: If you selected a Location record in Step 6 above, you may see the following message when clicking the OK button.



The message indicates that you have encountered a limitation in the geographic query engine. Either repeat Step 6, choosing a Location record with a simpler geometry, or go back to Step 5.

Completing a Query

As you build Query Conditions, the conditions appear at the bottom of the **Build Query** screen in the **Conditions List**.

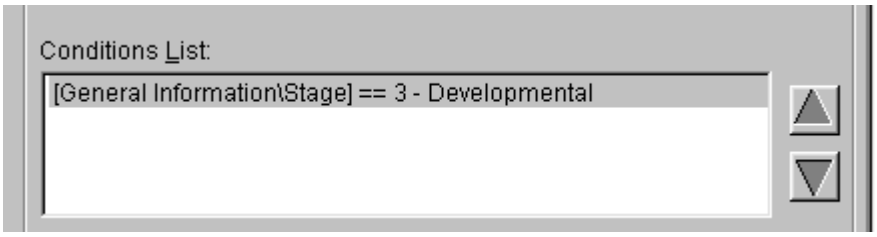


You can add additional conditions to your query. See Complex Queries.

When you've finished entering query conditions you can edit the existing query, save queries to disk, load saved queries, or print queries. When you finished building the query, you can run the query to select the desired records.

Complex Queries

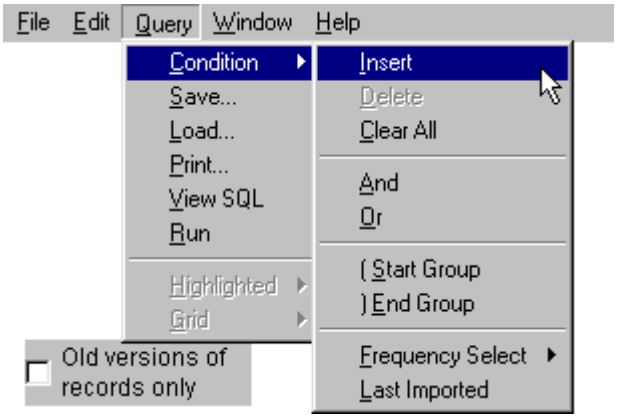
A complex query is one involving more than one query condition. All the query conditions appear in the **Conditions List** at the bottom of the **Build Query** screen.



To modify an existing condition, click on the condition in the **Conditions List**. Then click either on the **Field** box to change the Data Item Field, or click the **Operator** box to choose a different operator, or click the **Expression** box to change the expression. For more information on editing conditions, see Entering a Query Condition.

You can change the order of conditions by clicking on the condition in the **Conditions List**, then clicking the up arrow or down arrow buttons. You can also change the order by dragging the conditions.

To add, delete, or modify conditions in your query click **Query** on the main menu, then click **Condition**.



You can also perform these operations by right-clicking on a condition in the **Conditions List**.

In the menu that appears, you can perform the following operations:

Insert a new condition. The condition is inserted below the highlighted condition in the Conditions List.

Delete a condition from the query. The condition highlighted in the Conditions List is deleted from the query.

Clear All conditions from the query. All conditions are erased from the query.

Insert an **And** condition below the condition currently highlighted in the Conditions List.

Insert an **Or** condition below the condition currently highlighted in the Conditions List..

Insert a **Start Group** parenthetical operator below the condition currently highlighted in the Conditions List..

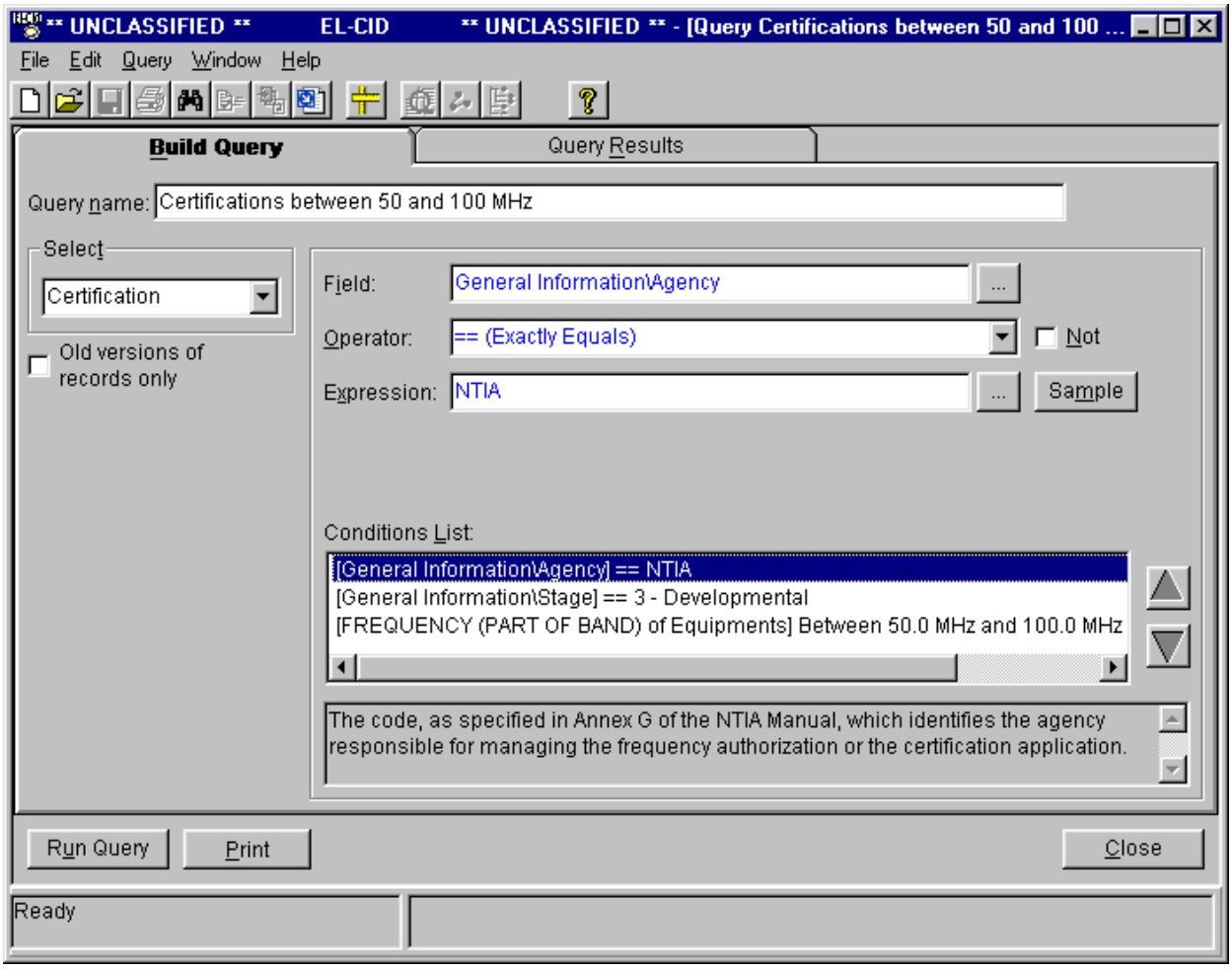
Insert an **End Group** parenthetical operator below the condition currently highlighted in the Conditions List..

Insert a **Frequency Select** condition or Edit an existing Frequency Select condition. See Entering a Frequency Condition for more information. The Frequency Select condition is inserted below the highlighted condition in the Conditions List.

Insert a **Geographic Select** condition or Edit and existing Geographic Select condition. See Entering a Geographic Select Query Condition for more information. The Geographic Select condition is inserted below the highlighted condition in the Conditions List.

Insert a **Last Import** condition to select records that were added to the database in the last import. The Last Import condition is inserted below the highlighted condition in the Conditions List.

When multiple lines of query conditions are entered, the program automatically assumes a logical AND operation (all conditions of the query must be met).



Certification records found with the query above must come from NTIA, they must be developmental, and they must have equipments in the frequency range 50 to 100 MHz. More complicated queries require the use of explicit AND and explicit OR statements as well as Start Groups and End Groups. These are explained in more detail below.

If you wanted to alter the query above so that it would select either developmental certification records from NTIA, or certification records with equipments between 50 and 100 MHz, you must insert an **Or** condition between the second and third conditions.

[General Information\Agency] == NTIA
[FREQUENCY (PART OF BAND) of Equipments] Between 50 MHz and 100 MHz
========== OR ==========
[General Information\Stage] == 3 - Developmental

Notice that the conditions on Agency and FREQUENCY are "grouped" together. In other words, the implied AND condition between them has a higher precedence than the OR operator.

If you wanted the condition on Agency to apply to all records selected, you would have to modify the query as follows

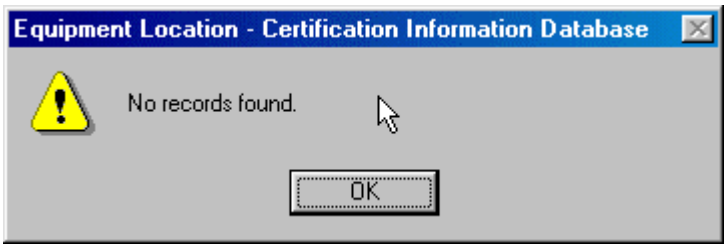
[General Information\Agency] == NTIA
======== (START GROUP =======
[FREQUENCY (PART OF BAND) of Equipments] Between 50 MHz and 100 MHz
============== OR =============
[General Information\Stage] == 3 - Developmental
========) END GROUP =========

The START GROUP and END GROUP conditions group the conditions on FREQUENCY and Stage together. To be selected, a record must meet either of these conditions and it must also be from NTIA.

For more information on building complex queries, see Advanced Queries.

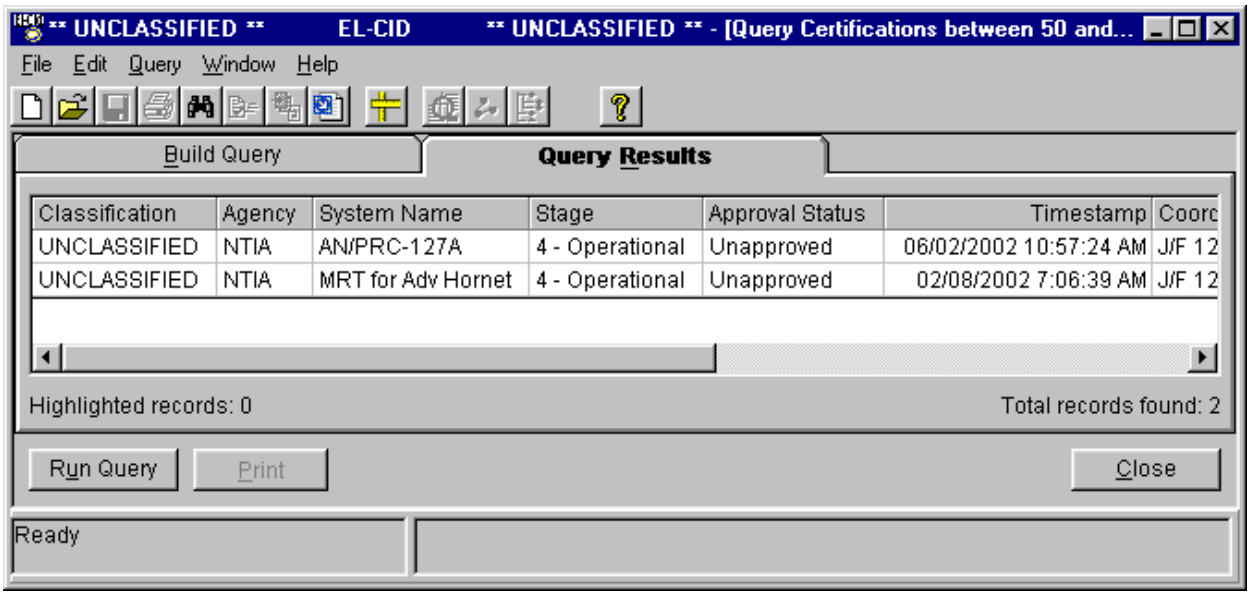
Running a Query

When you have completed creating or editing a query (see Creating or Editing a Query), click the **Run Query** button or click on the **Query Results** tab. The program executes your query, finding all records of the specified type which meet your query conditions. If no records are found, the following message appears.



Click **OK** and the program returns to the **Build Query** screen.

If one or more records are found, the records are displayed in the **Query Results** screen.

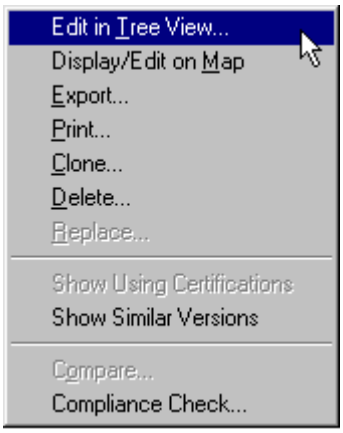


A count of the total records found which meet the query is displayed at the bottom right of this screen.

The records found are displayed in the grid -- one per row. You may click on a row to highlight the record. Hold down the **Ctrl** key while clicking to highlight more than one record. Hold down the **Shift** key while clicking to highlight a range of records. The number of records highlighted is displayed in the lower left-hand corner of the screen.

Performing Operations on Highlighted Records in the Query Results

Right-click on highlighted records to display a menu of operations you can perform on the highlighted records. You can also display this menu by clicking **Query** on the main menu, then click **Highlighted**.



Depending upon how many records you have highlighted, operations on this menu may or may not be enabled. The operations you can perform are:

- **Edit** a record in the Tree View. You must have exactly one record highlighted to enable this option. Choosing this options opens the highlighted record in the Tree View screen. You can also choose this option by clicking the Edit in TreeView button on the tool bar.

  Display/Edit a record on the map. If you highlight exactly one Location record in the grid and choose this option, you may modify the Location record, provided that the record is Unapproved or you are logged in as a Certifier. If you highlight more than one Location record in the grid, or highlight one or more Certification records, you may display the locations on the map, but not modify them.
- **Export** one or more records to a disk file. If you highlight more than one record, all records are exported to a single file. See Exporting Data for more information.
- **Print** a record. You must have exactly one Certification record highlighted to enable this option. See Printing Individual Certifications for more information. You can also choose this option by clicking the Print button on the tool bar, or by clicking the **Print** button at the bottom of the Query Results screen.
- **Clone** a record, i.e., make a copy of a record. You must have exactly one record highlighted to enable this option. You can also choose this option by clicking the Clone Record button on the tool bar
- **Delete** a record. You must have exactly one record highlighted to enable this option. See Deleting Records for more information.
- **Replace** an equipment with another equipment in all Certifications using the equipment. You must have exactly one transmitter, receiver, or antenna record highlighted to enable this option. See Replace an Equipment with Another for more information.
- **Show Using Certifications** displays all Certification records that use the highlighted equipment or Location record. You must have exactly one equipment or Location record highlighted to enable this option. See Querying Using Certifications for more information.
- **Show Similar Versions** displays all versions of records that are similar to the highlighted record. This option is only enabled when exactly one Certification, equipment, or Location record is highlighted.

- **Compare** any two records for differences. You must have exactly two records highlighted to enable this operation. You can also choose this option by clicking the Compare Certifications button  on the tool bar. See Comparing Two Records for more information.
- Run **Compliance Checks** on any single Certification record. You must have exactly one Certification record highlighted to enable this option. You can also choose this option by clicking the Compliance Checks button  on the tool bar. See Checking a Certification for Compliance for more information.

Note: Keep in mind that when editing or deleting an equipment or Location, you are affecting every Certification that uses that equipment or Location. To avoid this, you may wish to first use the **Clone** option to make a copy of the equipment or Location, then edit it. See Modify An Equipment Without Affecting Any Certifications for more information.

The following table summarizes the operations given above, the tool bar button for each operation, the types of records applicable to each operation, and the number of records that must be highlighted.

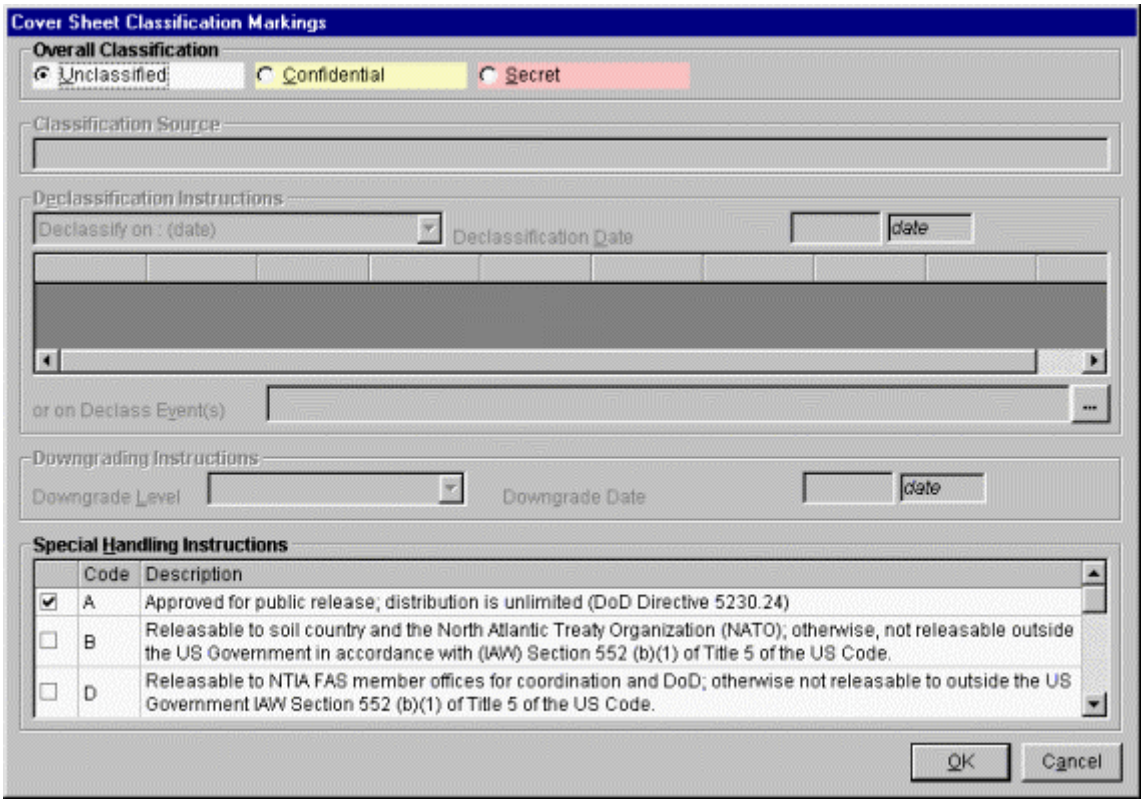
Operations Available with Highlighted Records in Query Results

Operation	Tool bar Button	Type of Record(s)	Records Highlighted	More Info
Edit in TreeView		Any except Policy and Recommendation	Exactly 1 record	Tree View
Display/Edit on Map		Certification and Location	At least 1 record	Displaying Location Records
Export		Any	At least 1 record	Exporting Data
Print		Certification	Exactly 1 Certification	Printing Individual Certifications
Clone		Certification, Transmitter, Receiver, Antenna, Location, or Compliance Check	Exactly 1 record	Cloning Records
Delete		Any except Policy and Recommendation. (Approved Compliance Checks may not be deleted by non-Certifiers).	At least 1 record	Deleting Records
Replace		Transmitter, Receiver, or Antenna	Exactly 1 record	Replacing an Equipment with Another
Show Using Certifications		Transmitter, Receiver, Antenna, or Location	Exactly 1 record	Querying Using Certifications
Show Similar Versions		Certification, Transmitter, Receiver, Antenna, or Location	Exactly 1 record	Querying Similar Versions
Compare		Any	Exactly 2 records	Comparing Two Records
Compliance Checks		Certification	Exactly 1 Certification	Checking a Certification for Compliance

You can also perform operations with the grid itself, such as sorting the grid rows by a column's value, or copying the grid data to the Windows clipboard. See Grid Options for more information.

Printing the Query Results Grid

You can print the grid by clicking **Query** on the main menu, then click **Grid**, then **Print**. Note that this prints the grid just as you see it; it does not print the 1494 forms or full record prints. Because you may be potentially printing classified information, the **Cover Sheet Classification Markings** screen appears.



The program automatically calculates the highest classification of all the data items listed in the grid. (Since you are only printing the grid, the classification of the full records is not used in this calculation.) It calculates the most restrictive **Declassification Instructions** and **Downgrading Instructions** from all the records listed in the grid. It also puts a check mark in the boxes of all the Special Handlings contained in the records listed in the grid. Because you are not printing the entire records -- just the grid, this screen gives you the opportunity to override these automatically calculated settings. You may also skip printing a cover sheet altogether by clicking the **Skip cover sheet** check box.

Note: Since only Certification records contain Classification Source, Declassification Instructions, Downgrading Instructions, and Special Handling Instructions, when you print other types of records, such as equipments and Locations, **NOT AVAILABLE** will appear for most of the items on the screen. You should either properly mark the data using this screen, or treat the print as working papers and destroy immediately after use.

Note: Responsibility for properly marking and destroying classified printouts lies with you -- the user. Consult with your Security Office for guidance.

If you do not wish to print the grid, click the **Cancel** button.

After selecting the desired Classification Markings, click the **OK** button. The **Print Preview** screen appears. See Previewing Printouts.

Exporting the Query Results Grid

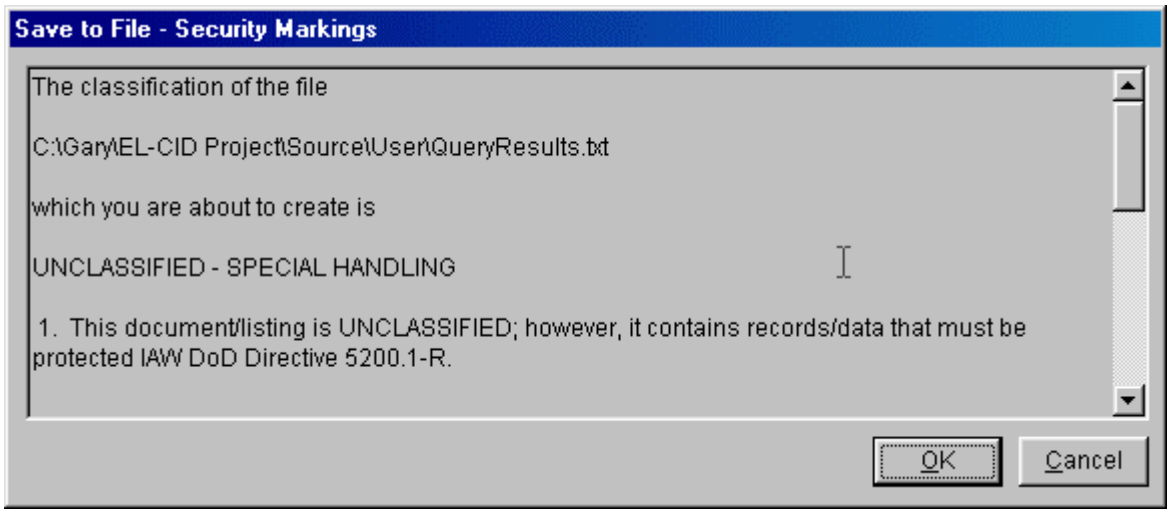
You can export the Query Results grid to an ASCII text file suitable for import into a spreadsheet program, such as Microsoft Excel. There are two ways to do this:

1. Start your spreadsheet program and open a spreadsheet. Arrange the windows so that you can see EL-CID and the spreadsheet on the screen at once. (You may need to use the Restore button in the upper right-hand corner of EL-CID to accomplish this.) Place the mouse cursor just to the right of one of the vertical lines of the grid. A drag mouse cursor appears.

   Press and hold the mouse button down and drag the grid from EL-CID to the spreadsheet program. The grid is inserted in the spreadsheet at the point where you drop it.

   Tip: Use the Task Switching capability of Windows to switch between applications while simultaneously dragging. While still holding down the mouse button with your right hand, hold down the **Alt** key with your left thumb and tap the **Tab** key with your left index or middle finger (don't let go of the **Alt** key). The Windows Task Switcher screen appears. While still holding down the **Alt** key, keep tapping the **Tab** key until the application you want is selected, then release the **Alt** key. Now continue dragging with the mouse. The other application must already be running to use this capability.

2. Click **Query** on the main menu, then **Grid**, then **Write to tab-delimited file**. A standard Windows file save dialog appears. The default folder is the \User subfolder under the EL-CID program folder. Enter a new file name, or select an existing file to be replaced and click **Save**. The **Cover Sheet Classification Markings** screen appears. See above under Printing the Query Results Grid for information on using this screen. When classification markings have been chosen, click **OK**. The **Save to File - Security Markings** screen appears.



   This screen shows you all the security markings and informs you that these markings will be written to a separate file with the same name as you chose, except with "_Security" appended to the name. For example, if exporting to a file named "MyExport.txt", the security markings are written to a file named "MyExport_Security.txt".

   If you do not wish to continue exporting, click **Cancel**. Otherwise, click the **OK** button. The grid data is written to the disk file and the security markings are also written to disk.

   The export file is a tab-delimited file suitable for import into most spreadsheet programs. The first row of this file contains the column headings in string format.

Note: If sharing a tab-delimited file with someone else, you should give them both the tab-delimited file and the security markings file.

Advanced Queries

This topic explains some of the more advanced aspects of building Queries.

Selecting Blanks and Missing

The following three queries for Certifications

[Transmitter\Nomenclature] Not Exists
[Transmitter\Nomenclature] == (Expression text box empty)
[Transmitter\Nomenclature] = (Expression text box empty)

which are all equivalent, are interpreted as "Select records having no transmitter nomenclatures". Since all transmitters must have a nomenclature, this selects certifications that do not have any transmitters.

What happens if you select on a field that may be blank? The queries for Certifications

[Transmitter\Manufacturer] Not Exists
[Transmitter\Manufacturer] == (Expression text box empty)
[Transmitter\Manufacturer] = (Expression text box empty)

which are all equivalent, are interpreted as "Select records having no transmitter manufacturer". This will include records having no transmitters as well as records in which ALL transmitters have blank Manufacturer. If a record has ANY transmitter with a Manufacturer that is not blank, the record will not be selected.

Consider the queries for Certifications

[Transmitter\Manufacturer] Missing (blank)
[Transmitter\Manufacturer] == ''
[Transmitter\Manufacturer] = ''

which are all equivalent. (Notice the two single-quote characters in the Expression.) They are interpreted as "Select records having ANY transmitter with a blank Manufacturer." Records having no transmitters will not be selected. Records having transmitters but all transmitters have a non-blank Manufacturer will not be selected. To be selected, a record must have one or more transmitters and one or more of those transmitters must have a blank Manufacturer.

Selecting Multiple Occurring Related Items

Consider the following query:

[Transmitter\Manufacturer] == AIRONET
[Transmitter\Output Device] == Diode

Since Manufacturer and Output Device are related to one another -- they are both in the Transmitter portion of a Certification record -- you might expect this query to select only records with diode transmitters manufactured by AIRONET. In fact, the query will select any record having at least one transmitter manufactured by AIRONET and at least one diode transmitter, but a single transmitter does not necessarily have to match both criteria at once. In short, the query does not honor any relationship between the items. (There is no way to specify such a relationship in the Query Builder.)

Operator Precedence

Q: When building compound queries containing **AND**, **OR**, **START GROUP** or **END GROUP**, what is the precedence of the operators? In other words, how are the conditions grouped or nested?

A: The quick answer is... the precedence from highest (executed first) to lowest (executed last) is:

Implied AND
User-entered OR
User-entered AND

START GROUP and END GROUP override these precedences.

For example, consider the following query on Certifications:

[Location Information\Location Name] == MD
[General Information\Stage == 3 - Developmental
[FREQUENCY (PART OF BAND)] Between M30..M50
========== OR ==========
[FREQUENCY (PART OF BAND)] Between M70..M80

To be selected, a Certification must either

Have a location in Maryland, and be developmental, and a frequency overlapping between 30 and 50 megahertz, or

Have a frequency overlapping between 70 and 80 megahertz.

This is probably not what was intended. Probably, the user intended this:

[Location Information\Location Name] == MD
[General Information\Stage == 3 - Developmental
======== (START GROUP =========
[FREQUENCY (PART OF BAND)] Between M30..M50
========== OR ==========
[FREQUENCY (PART OF BAND)] Between M70..M80
======== END GROUP) =========

In other words, select developmental certifications in MD with a frequency that overlaps either 30 to 50 MHz or 70 to 80 MHz. The same query could also be written like this:

[Location Information\Location Name] == MD
[General Information\Stage == 3 - Developmental
========== AND ==========
[FREQUENCY (PART OF BAND)] Between M30..M50
========== OR ==========
[FREQUENCY (PART OF BAND)] Between M70..M80

The first two statements are grouped together first (by virtue of their implied AND), the two frequency conditions are OR'd next because user-entered ORs are grouped before user-entered ANDs, and the two result sets are finally ANDed.

Consider the following example query on Certifications:

[Location Information\Location Name] == MD
========== OR ==========
[Location Information\Location Name] == VA
[General Information\Stage == 3 - Developmental

This query will select developmental certifications in VA, and it will select certifications in MD. The implied AND between the last two conditions is grouped before the OR. Once again, this is probably not what the user intended. The user probably intended:

[Location Information\Location Name] == MD
========== OR ==========
[Location Information\Location Name] == VA
========== AND ==========
[General Information\Stage == 3 - Developmental

Because user-entered ANDs are grouped after user-entered ORs, this query will select developmental certifications in either MD or VA.

Viewing Generated Query SQL

If you know Sequel Query Language (SQL), you can view the SQL generated by the Query Builder by clicking **Query** on the main menu, then **View SQL**. Note that the displayed SQL can be quite complex, so experts only!

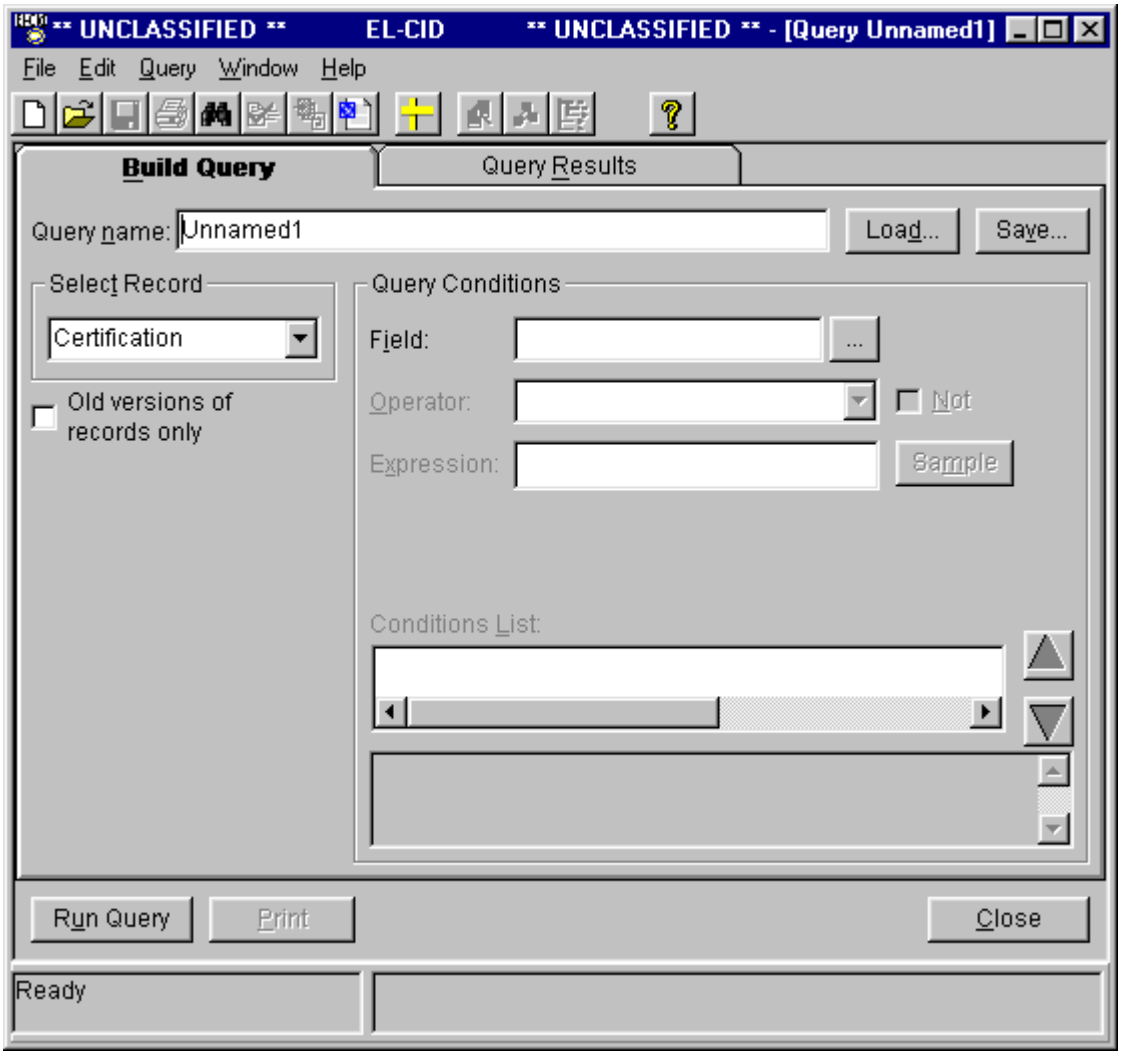
Querying Older Records

Whenever you clone records, or whenever you import records, the possibility exists to have multiple versions of the same record in your database.

Definition: A record is older than another record of the same type if its Timestamp is older than the other, and the rest of the ID is identical or the rest of the ID is identical except that the record is Unapproved and the other record is Approved.

See About Record IDs, Approval Status, Timestamps, and Versions for an explanation of how this comes about.

You can use the Query Builder to identify older versions of records in your database. On the **Query Builder** screen, build a query like normal.



Check the **Old versions of records only** check box and click **Run Query**. The older versions of the type of records you have specified will be listed in the Query Results screen. From the **Query Results**, you can perform all the operations normally available from this screen, including Export and Delete.

Note: When you check the **Old versions of records only** check box, the latest version of each record is not listed in the **Query Results**; only the older versions.

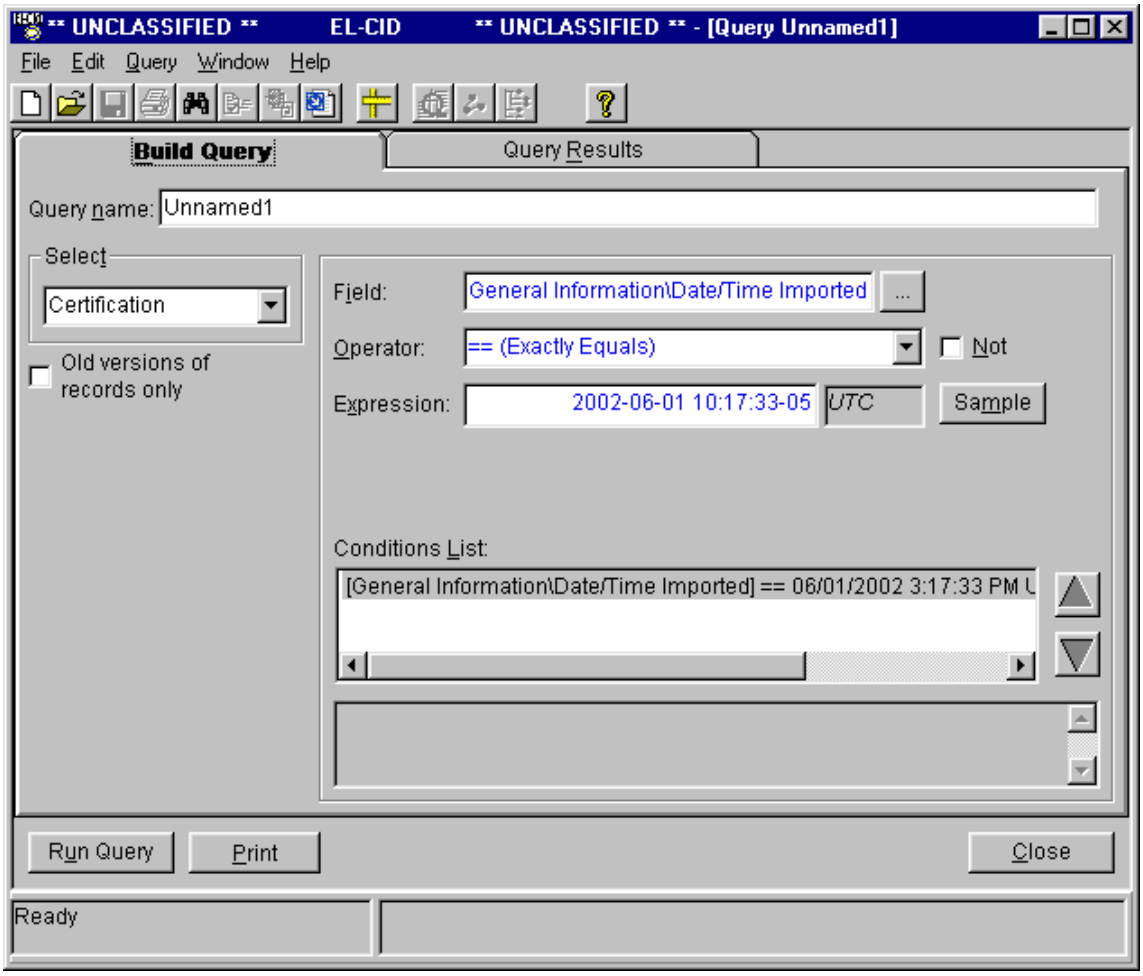
Querying Imported Records

Whenever you import records, the program remembers the current date and time. In the Query Builder, you can quickly locate the imported records using the Last Imported option.

Note: The program remembers only the date and time of the last import.

To find the records last imported, proceed as follows.

1. Start a query by clicking the New Query button on the tool bar, or click **File** on the main menu, then click **New**, then **Query**.
2. In the **Select** box, choose the type of records you last imported.
3. Click **Query** on the main menu, then click **Condition**, then click **Last Imported**. A query condition is automatically inserted for you to test against the **[General Information\Date/Time Imported]** data item. Here is a sample screen.



4. Click the **Run Query** button. The records last imported are displayed in the Query Results screen.

Querying Similar Versions

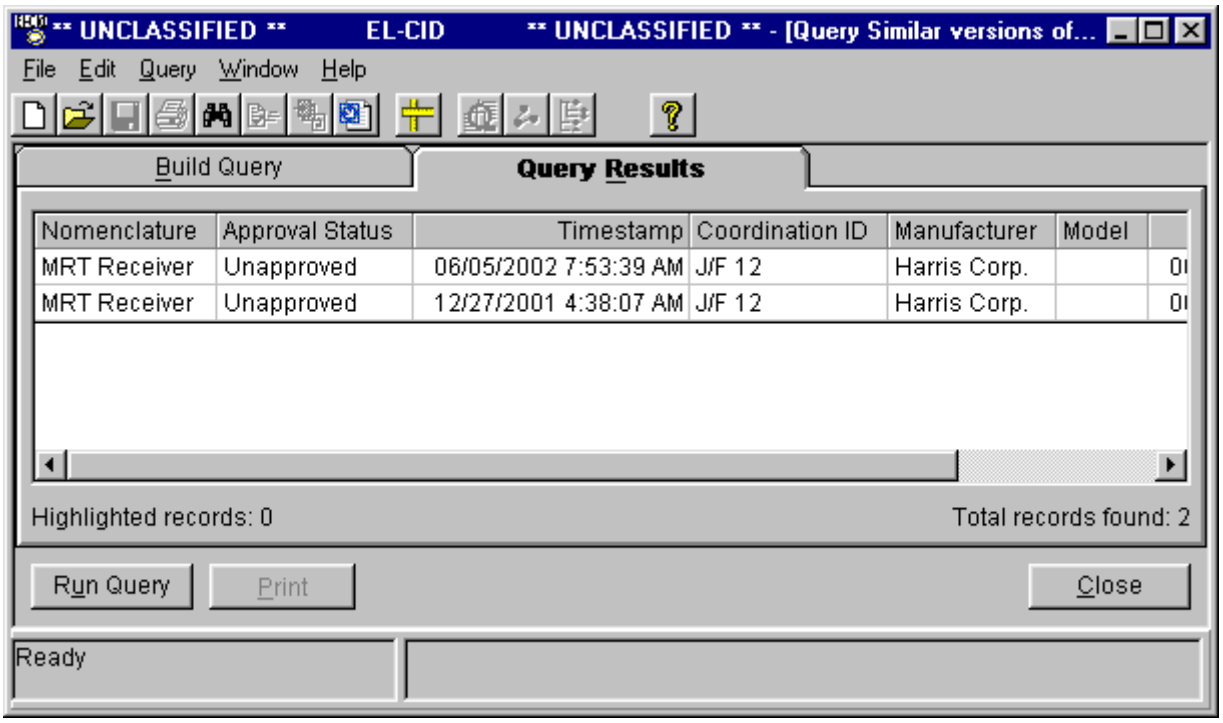
Whenever you clone records, or whenever you import records, the possibility exists to have multiple versions of the same record in your database.

Definition: Two records of the same type are similar if their identifiers (IDs) are identical except for Approval Status, Timestamp, and Coordination ID. See About Record IDs, Approval Status, Timestamps, and Versions for more information about record versions.

There are several places in the program where you can query for similar versions of records:

- In the Tree View, you can right-click on any **[Certification]**, **[Transmitter]**, **[Receiver]**, **[Antenna]**, or **[Location]** node and click **Show Similar Versions** in the popup menu that appears.
- In the Query Results screen, you can highlight any single record, right-click on that record, and click **Show Similar Versions** in the popup menu that appears. This is only possible when querying Certifications, Transmitters, Receivers, Antennas, or Locations.

In either case, choosing the **Show Similar Versions** option causes the program to automatically create a query for you, selecting records having the same ID as the current record, except for Approval Status, Timestamp and Coordination ID. The list of similar versions is displayed in the **Query Results** screen.



Tip: This option creates a brand new query window. The title of the window will begin with **[Query Similar Versions of**. Any existing query, Tree View, or Diagram windows are left open. You can switch between the various windows by clicking **Window** on the main menu.

Note: The list of records includes the original record as well as the versions similar to it. The records are sorted on **Approval Status** (Approved then Unapproved), **Timestamp** (most recent first), and **Coordination ID**.

From this screen you can perform any of the operations one can normally perform from a query results, including:

- Compare two records.
- Print a Certification record.
- Export records.
- Edit a record in the Tree View.
- Delete records.

You can also modify the query, print the query, or save the query just as you would when creating any query.

When finished viewing the similar versions, click the **Close** button.

Querying Using Certifications

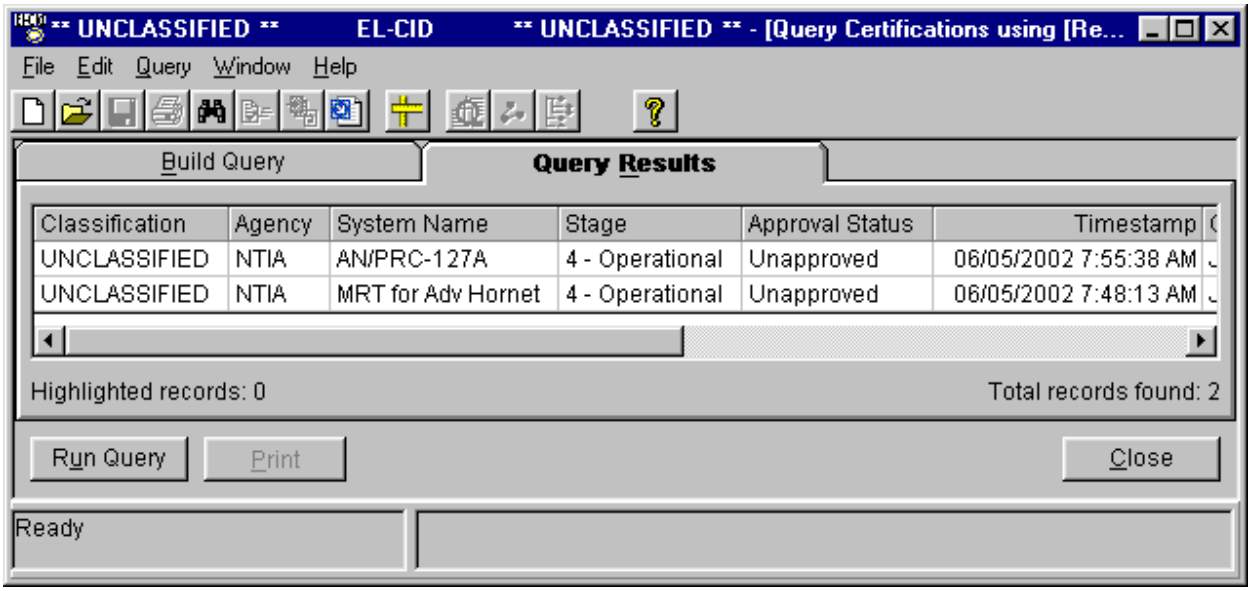
The Transmitter, Receiver, Antenna, and Location records in EL-CID can be used (contained) in one or more Certification records. In other words, a single equipment or Location record can be "shared" amongst several Certification records. (EL-CID encourages the re-use of equipment and Location records in an effort to avoid creating multiple copies of these records in the master database.)

In the Tree View, if one of these records is used in more than one Certification, a double padlock icon (or) will appear next to it.

You can find out which Certifications use any of these records from several places in the program:

- In the Tree View, you can right-click on any **[Transmitter]**, **[Receiver]**, **[Antenna]**, or **[Location]** node and click **Show Using Certifications** in the popup menu that appears.
- In the Query Results screen, you can highlight any single record, right-click on that record, and click **Show Using Certifications** in the popup menu that appears. This is only possible when querying Transmitters, Receivers, Antennas, or Locations.

In either case, choosing the **Show Using Certifications** option causes the program to automatically create a query for you, selecting Certification records containing the current record. The list of using Certifications is displayed in the **Query Results** screen.



Tip: This option creates a brand new query window. The title of the window will begin with **[Query Certifications using**. Any existing query, Tree View, or Diagram windows are left open. You can switch between the various windows by clicking **Window** on the main menu.

Note: The records are sorted on **Agency Code**, **System Name**, **Stage**, **Approval Status** (Approved then Unapproved), **Timestamp** (most recent first), and **Coordination ID**.

Note: If there aren't any Certifications that use the current record, the message **No records found** appears, and the **Query Builder** screen appears. Close the query by clicking the **Close** button.

From this screen you can perform any of the operations one can normally perform from a query results, including:

- Compare two records.
- Print a Certification record.
- Export records.
- Edit a record in the Tree View.
- Delete records.

You can also modify the query, print the query, or save the query just as you would when creating any query.

When finished viewing the using Certifications, click the **Close** button.

Import/Export

Exporting Data

From the Tree View screen, you can export any single Certification from EL-CID to a file on disk. Proceed as follows:

1. Open the existing Certification in the Tree View screen.
2. Click **File** on the main menu, then click **Export**. Go to Step 3 below.

From the **Query Results** screen, you can export one or more of the following records to a file on disk:

- Certifications
  Equipments (Transmitters, Receivers, or Antennas)
- Locations
- Compliance Checks
- Manufacturers
- Policies
- Recommendations

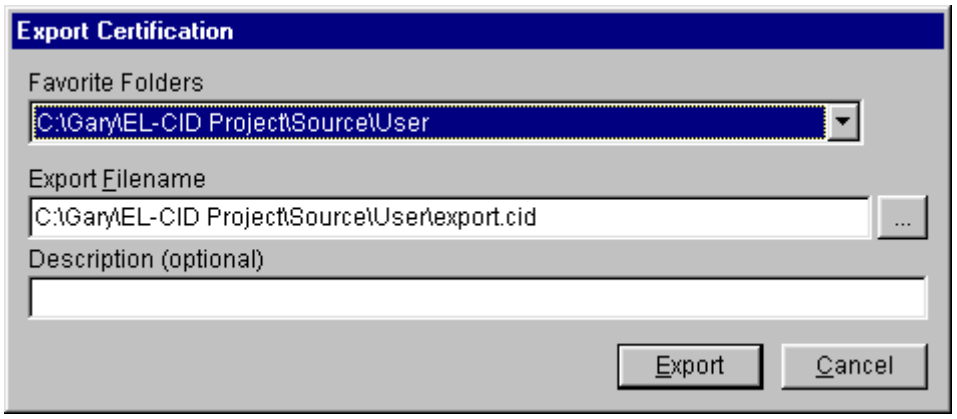
Proceed as follows:

1. Build a query to select the records you want to export. See Creating or Editing a Query. The type of records you export will be determined by the type of records you query on, i.e.
   - Certifications
     Transmitters
   - Receivers
   - Antennas
   - Locations
   - Compliance Checks
   - Manufacturers
   - Policies
   - Recommendations

Note: When you export Certifications, the program also exports all the equipments and Locations used by those Certifications. When you export equipments or Locations, just the equipments or Locations are exported.

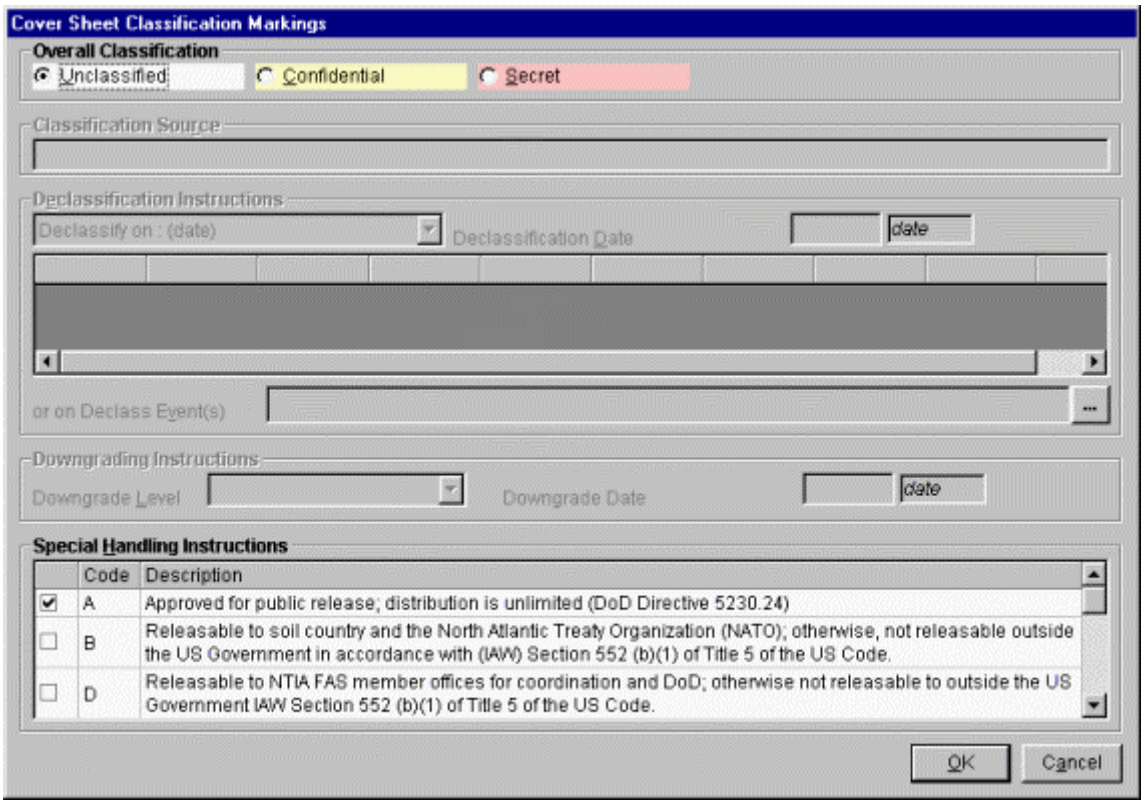
2. Run the query. See Running a Query. In the **Query Results** screen, highlight the records you want to export. Right-click on the highlighted records and click **Export** in the menu that appears.

3. The Export screen appears.



Type in a file name or click the browse ... button. A standard Windows file Save dialog appears. The default folder is the \User subfolder of the EL-CID program folder. Type in a file name or select an existing file to be replaced and click **Save**. Export files must always be named with an extension of ".cid". When you have entered a file name in the **Export** screen, click the **Export** button.

4. The **Cover Sheet Classification Markings** screen appears.



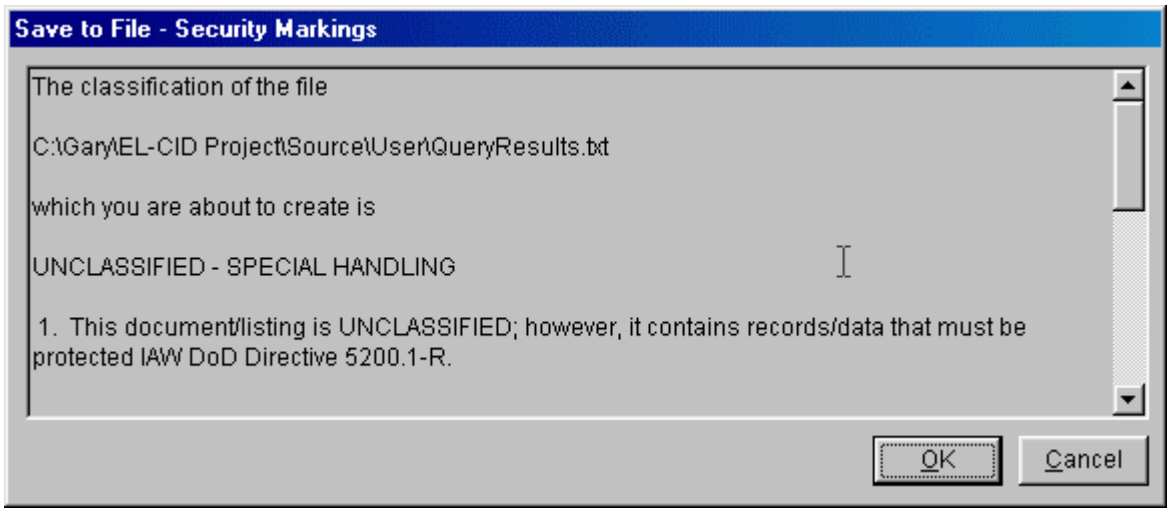
The program calculates the highest classification of all the records to be exported. It also calculates the most restrictive **Declassification Instructions** and **Downgrading Instructions**, and checks all the **Special Handling Instructions** from all the records. You may override any of the markings using this screen.

Click **Cancel** to abandon exporting the records, otherwise click **OK**.

Note: Since only Certification records contain Classification Source, Declassification Instructions, Downgrading Instructions, and Special Handling Instructions, when you export other types of records, such as equipments and Locations, **NOT AVAILABLE** will appear for most of the items on the screen. You should either properly mark the data using this screen, or treat the output as working papers and destroy immediately after use.

Note: Responsibility for properly marking and destroying classified outputs lies with you -- the user. Consult with your Security Office for guidance.

5. The **Save to File - Security Markings** screen appears.



This screen shows you all the security markings and informs you that these markings will be written out as comments in the export file you chose.

If you do not wish to continue exporting, click **Cancel**. Otherwise, click the **OK** button. The highlighted records are written to the disk file.

Note: The export file is a compressed file containing a file named "export.xml". The latter file contains the data of the exported records in XML format. The security markings from above appear in this file as a comment near the top of the file. When exporting Certifications, the cid file will also contain copies of all the attachment files referenced in the exported Certifications. The cid file can be uncompressed using any ZIP-compatible utility, such as WinZIP. You will not normally need to do this when operating EL-CID, since EL-CID will automatically unzip cid files when importing.

The exported file is suitable for import into EL-CID. See Importing Data.

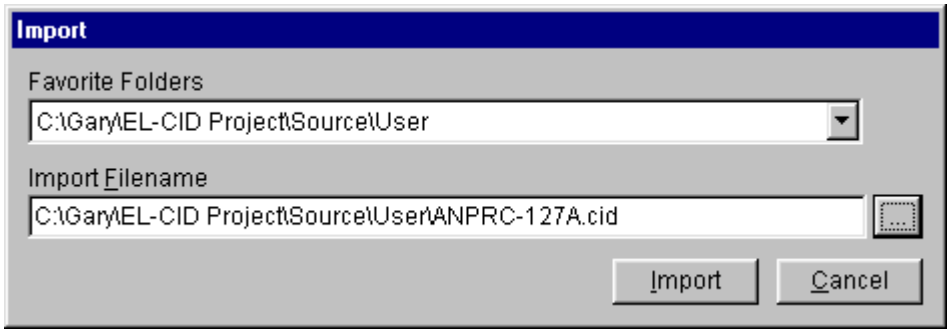
Note: If the record(s) you exported is classified, you should handle the export file using approved security procedures.

Importing Data

You may import data that has been exported by a compatible version of EL-CID. See Exporting Data.

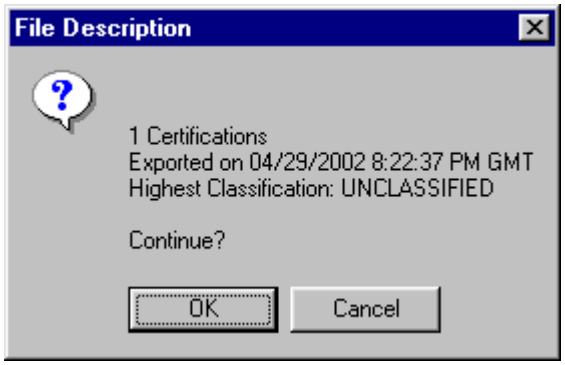
To import data, proceed as follows:

1. If you have any Certifications currently open in the program, close them by closing the **Tree View** screens that have them open.
2. Click the **Import** button  on the tool bar, or click **File** on the main menu, then click **Import**.
3. The **Import** screen appears.



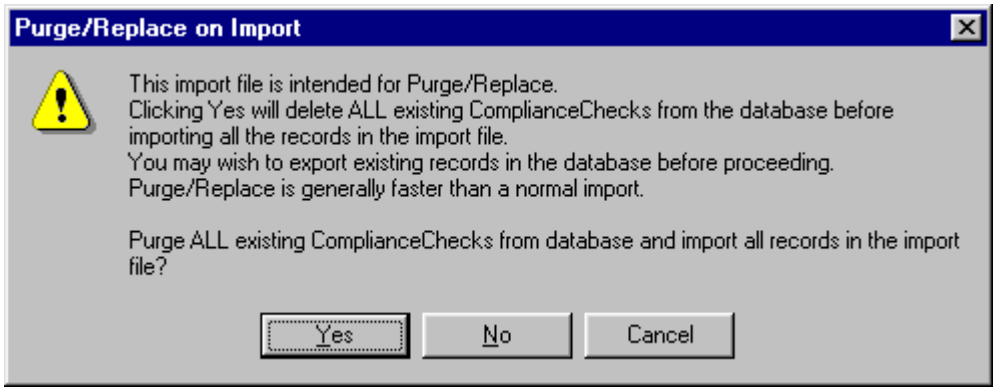
Type in the name of an existing export file or click the browse  button. A standard Windows file Open dialog appears. The default folder is the \User subfolder of the EL-CID program folder. Select an existing file to be imported and click **Open**. When you have entered a file name in the **Import** screen, click the **Import** button.

4. A progress dialog is displayed as the import file is loaded into a temporary database. Then the **File Description** screen appears.



The screen gives you some information about the data in the import file. Click **OK** to continue with the import, or click **Cancel** to abandon the import.

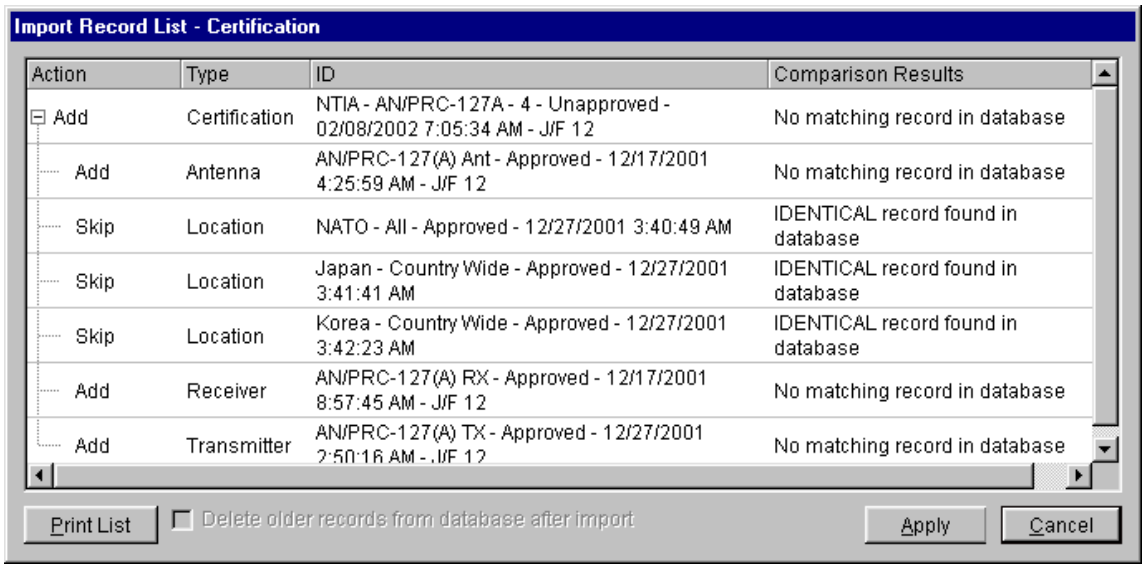
5. In some cases, the **Purge/Replace on Import** screen appears.



This screen will appear if the file was exported by a Certifier and the Certifier set the Purge/Replace option. This screen will appear because the Certifier intends for you to purge all the records of the specified type from your database before importing the records in the import file. If you click **Yes** on this screen, all the records of the specified type will be deleted from your database, and then the records in the import file will be automatically added to your database with no further screens. If you click **No**, then the import will proceed like any normal import; see the next step. If you click **Cancel**, the import is abandoned.

Tip: You should think carefully before clicking **Yes**. Are there records of the specified type in your database that the Certifier has not yet received? If so, choosing **Yes** will delete them and you won't be able to recover them! If this is the case, choose **Cancel**, then export your records before re-running the import (See Exporting Data), or choose **No**.

6. The **Import Record List** screen appears.



(Records have not yet been imported when this screen appears.) This screen lists all the records found in the import file. Notice that when importing Certifications, the equipment and Location records they contain are also imported. The **Type** column indicates the type of each record (**Certification**, **Transmitter**, **Receiver**, **Antenna**, or **Location**). The **ID** column shows the identifier for each record to be imported. For Certifications, this is the Agency, System Name, Stage, Approval Status, Timestamp, and Coordination ID. For equipments, it is the Nomenclature, Approval Status, Timestamp, and Coordination ID of the equipment. For Locations, it is the State/Country, City, Approval Status, and Timestamp of the Location.

The program searches the database for existing records of the same type and ID and displays the results in the **Comparison Results** column. It also automatically determines whether the record will be imported (added to the database) or skipped and sets the **Action** column accordingly. This decision is based on whether a matching record already exists in the database and if so, whether it is older than the importing record.

Definition: A record is older than another record of the same type if its Timestamp is older than the other, and the rest of the ID is identical or the rest of the ID is identical except that the record is Unapproved and the other record is Approved.

Five possible values may appear in the **Comparison Results** column:

- **IDENTICAL record found in database**. A record exactly identical to the record in the import file in every way was found in the database. Since there is no point in importing such a record, the **Action** column is automatically set to **Skip**. You may not override this action.
- **No matching record in database**. There are no records in the database similar to the record in the import file. The **Action** column is automatically set to **Add**, but you may override this and change it to **Skip** if you don't want to import the record.
- **OLDER record found in database**. The record in the import file is similar to, but is newer than the existing record in the database, i.e., the import record has been modified since the last time the existing record was modified. The **Action** column is automatically set to **Add**, but you may override this to **Skip** if you don't want the newer record to be imported. Importing a newer record will not alter the older record; both records will exist in the database after the import is completed.
- **NEWER record found in database**. The record in the import file is similar to, but older than an existing record in the database. The **Action** column is automatically set to **Skip**, but you may override this to **Add** if you want to import the older record. Importing an older record will not alter the newer record; both records will exist in the database after the import is completed.
- **NEWER UNAPPROVED record found in database**. The record in the import file is similar to and older than an existing Unapproved record in the database, but since the record in the import file is the newest Approved version of the record, the program automatically sets the **Action** column to **Add**. You may override this to **Skip** if you do not want to import the Approved record. Importing the record will not alter the newer Unapproved record; both records will exist in the database after the import is completed.

7. If desired, override the actions for each record by clicking in the **Action** column next to each record. A pick list will appear. Select the action desired from this list. Note that **Add**ing a Certification always **Add**s the equipments and Locations it contains unless identical equipments or Locations already exist in the database.

   Note: If you cannot change the action for an equipment or Location from **Add** to **Skip**, it is because there is a Certification using that equipment or Location that is marked **Add** somewhere in the import list. Change the Certification action to **Skip** and then try changing the action for the equipment or Location.

8. If you do not wish to import any records, click the **Cancel** button. When you have chosen the desired **Action** for each record, click the **Apply** button to import the records and perform the chosen actions. As each record is imported, the **Action** column changes to **ADDED** or **SKIPPED** thereby showing the action completed. When all the actions are completed, the **Apply** button changes to an **OK** button. Click **OK** to close the **Import Record List** screen.

After importing records, you may wish to perform a query to list all the imported records. See Querying Imported Records. You may also want to compare imported versions of records against existing records already in your database in order to see what has changed. To do that, proceed as follows:

1. Perform a Query on Imported Records.
2. In the resulting list of records, pick a record and perform a Query Similar Versions.
3. In the resulting list of similar versions, pick any two record versions and perform a comparison.
4. Repeat Steps 2 and 3 for any other records you want in the Imported Records list you created in Step 1.

Printing

Printing Individual Certifications

You can print individual Certifications in any combination of the following formats:

- DoD 1494. You can also control which pages of a 1494 are printed.
- EL-CID Full Record Print. All the data entered into EL-CID for the Certification.
- EL-CID Summary Print. Key information from the Certification.
- Certification of Spectrum Support. The page NTIA generates when a Certification has received final approval.
- Line Diagram.

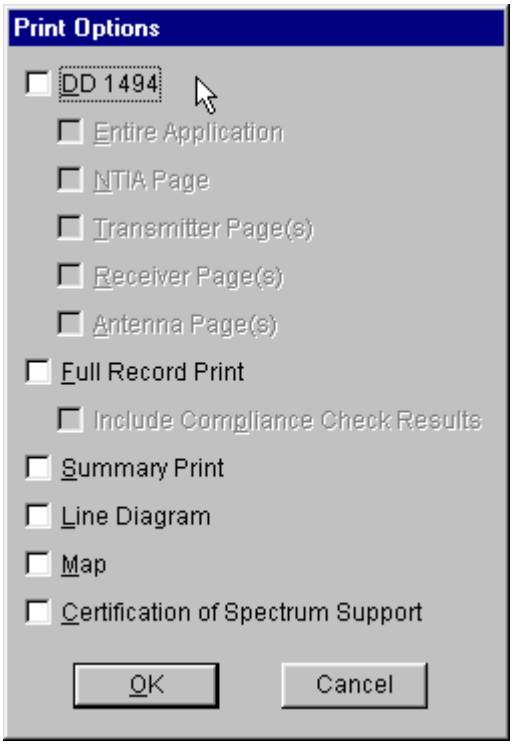
Note: The 1494 form printed by EL-CID is actually the NTIA version of this form. At this time, the NTIA page is printed, but not the DoD page. A future version of EL-CID will print the DoD version of the form.

Note: EL-CID does not collect all the data blocks that appear on the 1494 form, therefore a few of the blocks will be blank. On the other hand, the 1494 form does not contain all the data items collected by EL-CID. To print all data items collected by EL-CID, choose the Full Record Print and Diagram Print.

You can initiate a print of an individual Certification in any of the following ways:

- Open the Certification in the Tree View. Then click the Print button on the tool bar  or click **File** on the main menu, then **Print**.
- Build and run a query to select the certification record (see Creating or Editing a Query and Running a Query). Highlight the record in the **Query Results** screen, right-click and select **Print** in the menu that appears.

In all cases the **Select Print Options** screen appears.



To print the 1494 for a Certification check the **Print DD 1494** option, then check **Entire Application** or check and uncheck the pages of the 1494 you want printed.

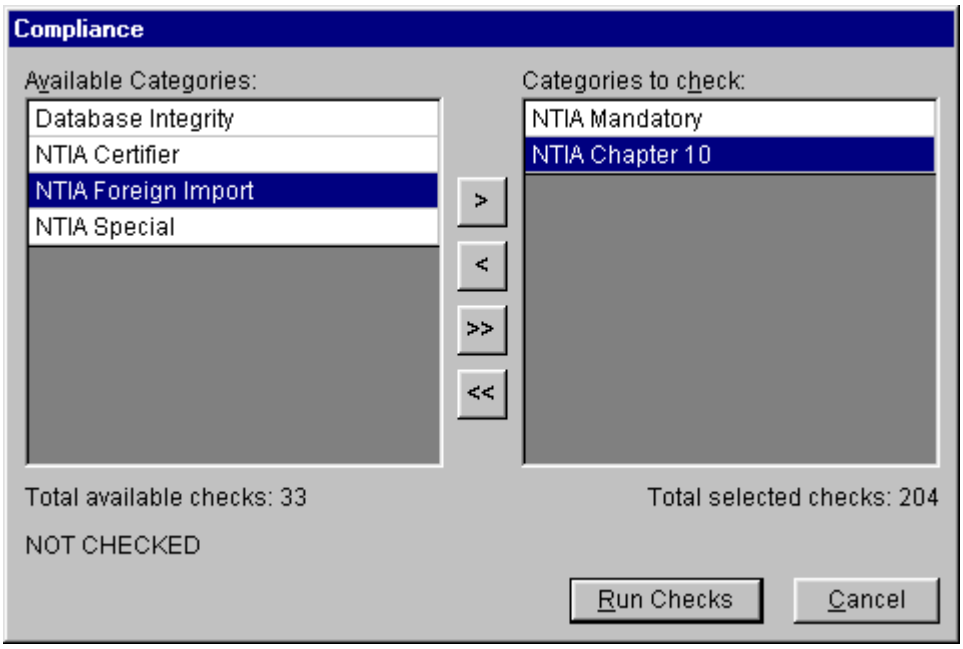
Note: In all cases, when printing a 1494, the Security page is always printed.

Tip: You may wonder how items printed on 1494 forms relate to the data items that EL-CID collects, or vice versa. To find out, see Data Item Finder.

Note: The Certification of Spectrum Support page does not include the signature of the Recommending and Approving Authorities, therefore, it is not considered an official (legal) document.

To print a summary of the record (key information from the Certification), check **Summary Print**. To print the Line Diagram for the Certification, check **Print Line Diagram**. To print the entire record in EL-CID format, check the **Full Record Print** check box.

When performing a Full Record Print, you also have the option to run and print Compliance Checks against the Certification. Check the **Include Compliance Check Results** box to do this. The **Compliance** screen appears.



Choose the categories of Compliance Checks to be run (see Checking a Certification for Compliance for how to do this), then click the **Run Checks** button, or click **Cancel** to abandon the print. When the Compliance Checks have finished running, the **Run Checks** button changes to **Print**. Click the **Print** button to proceed with the print.

After a few moments, a print preview screen appears. For information on using the print preview screen, see Previewing Printouts. You can send the printout to the printer from the preview screen by clicking the **Print** button  .

Printing Individual Equipments

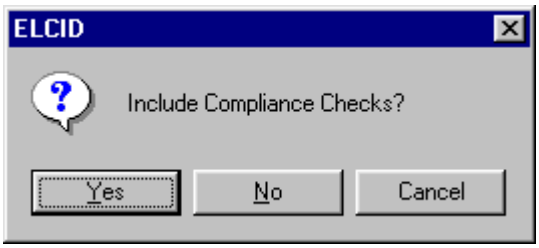
You can print individual equipments (Transmitters, Receivers, or Antennas). Equipments are printed in Full Record format.

Tip: You can print an equipment in 1494 format by printing a Certification that uses the equipment.

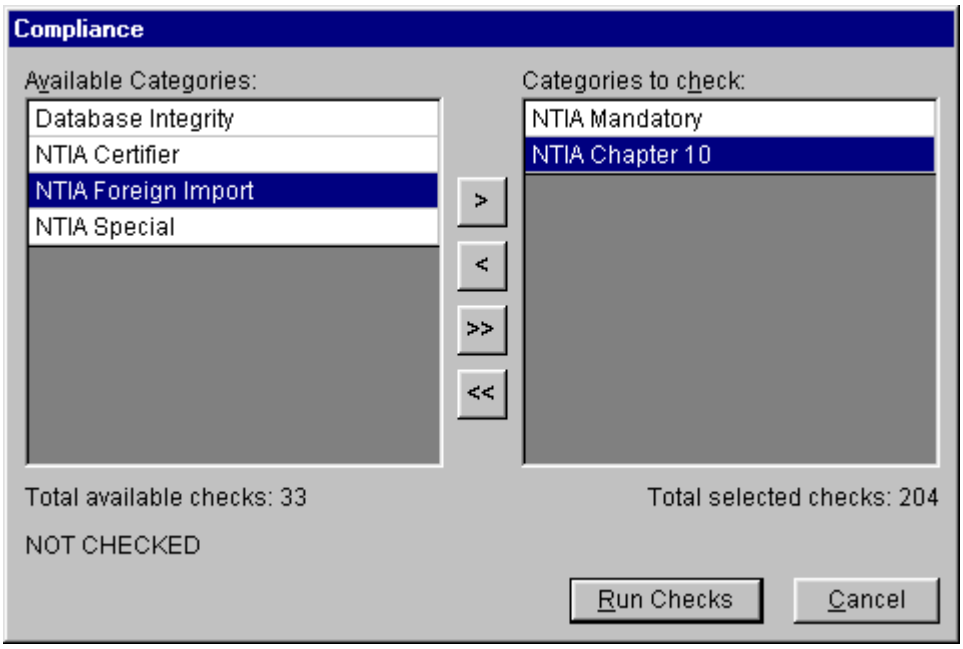
You can initiate a print of an individual equipment in any of the following ways:

- Open the equipment in the Tree View. Then click the Print button on the tool bar  or click **File** on the main menu, then **Print**.
- Build and run a query to select the equipment record (see Creating or Editing a Query and Running a Query). Highlight the record in the **Query Results** screen, right-click and select **Print** in the menu that appears.

In all cases the **Include Compliance Checks** screen appears.



To abandon the print, click **Cancel**. If you do not want to run and print Compliance Checks with the equipment, click **No**, otherwise click **Yes** and the **Compliance** screen appears.

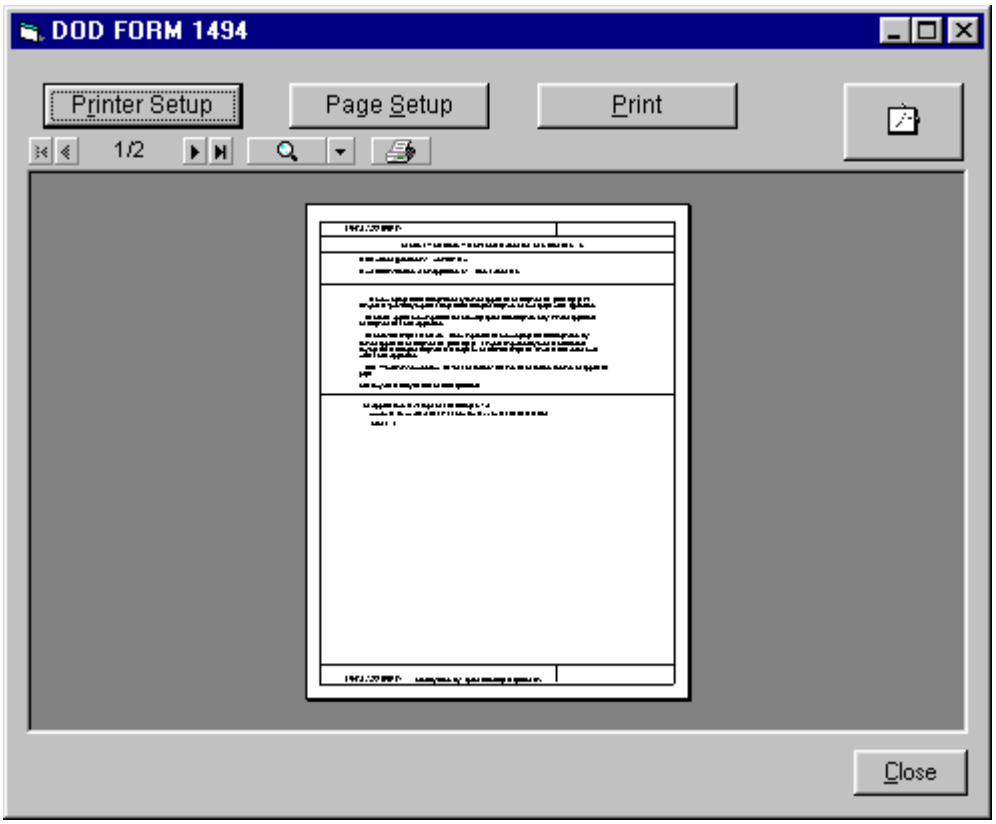


Choose the categories of Compliance Checks to be run (see Checking a Certification for Compliance for how to do this), then click the **Run Checks** button, or click **Cancel** to abandon the print. When the Compliance Checks have finished running, the **Run Checks** button changes to **Print**. Click the **Print** button to proceed with the print.

After a few moments, a print preview screen appears. For information on using the print preview screen, see Previewing Printouts. You can send the printout to the printer from the preview screen by clicking the **Print** button  .

Previewing Printouts

Most of the printing options in EL-CID first send printouts to a print preview screen. You can then send the printout to the printer from this screen.



To send the printout to the printer, click the print button  or click the **Print** button. A standard Windows Print dialog appears. Choose your printer and click **OK**.

Tip: You can print individual pages, or ranges of pages, by selecting the appropriate options on the Print dialog. Ranges of pages are entered with a hyphen, for example, 1-4.

To enlarge the view of the printout, click the zoom button  . If you hold down the **Shift** key, the mouse left button pages backwards through the pages, while the mouse right button pages forward. If you hold down the **Ctrl** key, the mouse left button zooms in, while the mouse right button zooms out.

Tip: Maximize the window to obtain the largest viewing area for the printout.

Instead of (or in addition to) printing on paper, you may save the printout to a file in Adobe Portable Document (PDF) format. Such files can be viewed using the free Adobe Acrobat Reader. To create a PDF file, click the PDF button and enter a file name.

Note: Due to a defect in the commercial PDF component used in EL-CID, you must set the default page Orientation of your default Windows printer to the same mode -- Portrait or Landscape -- as the EL-CID printout. You must do this before saving to a PDF file. If the program detects that the orientations do not match, you will receive a warning message. You can change the default orientation of your default Windows printer from the Windows Settings (Click **Start** button, then **Settings**, then **Printers**. Right-click on the default Windows printer and choose **Properties** in the menu that appears.)

Tip: In order to view PDF files, you must have a PDF reader program. A copy of Adobe Acrobat Reader is available on the EL-CID install CD in folder "Adobe Acrobat Reader" or can be downloaded from the Adobe website.

When finished viewing or printing the printout, click the **Close** button.

Map

About the Map

The map screen is used to manipulate and display Location records. You can perform the following functions with the map:

- Display one or more Location records.
- Display locations contained within one or more Certification records.
- Select Location records to be added to a Certification record.
- Build a query to select Certification or Location records overlapping a geographic area on the map. See Entering a Geographic Select Query Condition.
- Create new Location records.
- Edit existing Location records (if they are Unapproved or you are a Certifier).
- Move a Location from one layer to another (if they are Unapproved or you are a Certifier).
- Create new layers or import map layers from an external source.
- Delete empty layers from the map.
- Customize the map display by setting layer and symbol colors, line styles, opacity, etc. You can also create custom zooms for the areas on the Earth that interest you.
- Print the map.

About Location Records

Before approving your Certification Application, NTIA needs to know where you will operate the equipment. You do this by adding Location records to the Certification record in the **Tree View**.

Locations are separate records in EL-CID, which means they may be separately displayed, created, edited, queried, imported, and exported using EL-CID capabilities. They may be used in more than one Certification record.

Where Locations Appear in a Certification

When editing a Certification record in the Tree View, you may specify Locations in two places. **[Location]** nodes may appear

1. Underneath the **[Location Information]** node. These Locations apply to the entire Certification as a whole, and/or
2. Underneath each **[Station]** node in the tree. These Locations apply to the Station they are under. In effect, these are the Locations of the Antennas used at the Station.

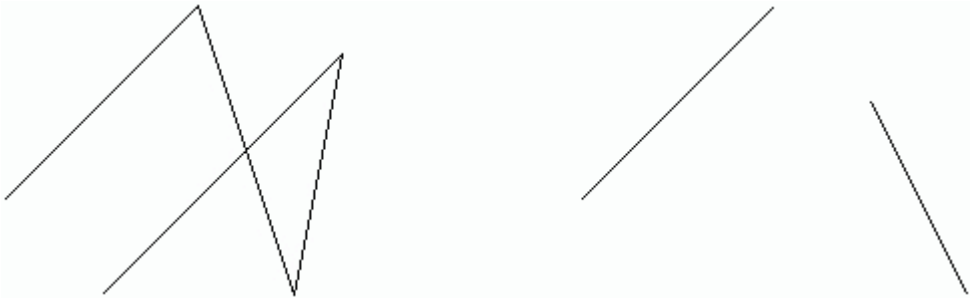
Where you should place Locations within a Certification depends upon the kind of system, as follows:

- ✍ For Trunking Systems, you are required to specify the location of each base station and repeater in the system. In addition, you must specify the location of the Trunking System as a whole. Therefore, you must add **[Location]** nodes to the **[Location Information]** node as well as the **[Station]** node of each base station or repeater in the system.
- ✍ For space systems, you specify the satellite orbital characteristics for each satellite in the system, and you specify the location of each ground station in the system. If the system has multiple satellites, all using similar equipment and emissions, you probably created a single Station icon in the Line Diagram. In this case, you would add multiple **[Location]** nodes to this single **[Station]** node. Similarly, if the system has multiple ground stations, all using similar equipment and emissions, you probably created a single Station icon in the Line Diagram to represent all the ground stations. In this case, you would add multiple **[Location]** nodes to the this single **[Station]** node. Note that you do not add any **[Location]** nodes to the **[Location Information]** node.
- ✍ For all other systems, specific Station locations are generally not required. In this case, you add a **[Location]** node or nodes to the **[Location Information]** node, and do not add any to the individual Stations.

Types of Locations

There are five **Location Types** which determine the geometry (the spatial shape) of the Location record:

1. **Single Point**. A single coordinate pair (latitude and longitude) on the surface of the Earth. When approved, equipment may operate at this single point.
2. **Center Point and Radius**. These are circles on the surface of the Earth with coordinates for the center point and a distance giving the radius from the center point. When approved, equipment may operate anywhere within or on the circle. Circles may not have "holes", i.e., donuts are not possible.
3. **Line**. A series of two or more coordinate pairs which specify a line. The line may have multiple segments, but all segments must be connected. In other words, the line on the left is possible, but not the line on the right.



Lines are typically used for specialized applications, such as transmitters located along Interstate highways, or satellite ground tracks. When approved, equipment may operate anywhere along the line.

4. **Polygon**. A series of three or more coordinate pairs that specify an irregular area on the surface of the Earth. When approved, equipment may operate anywhere within or on the polygon. "Holes" are not possible, i.e. areas excluded within the polygon. Multi-part polygons are possible. For example, the record for North Carolina has two parts -- one part for the main portion of North Carolina, and a second part for the coastal barrier islands.
5. **Geo-synchronous Satellite**. A satellite whose orbit hovers above a constant longitude on the surface of the Earth. Satellite locations should only be used on satellite Stations.
6. **Non-geosynchronous Satellite**. A satellite that does not orbit above a constant longitude on the surface of the Earth. The following orbital parameters must be specified: Altitude at Apogee, Altitude at Perigee, Equatorial Inclination, and Period of Orbit. Satellite locations should only be

used on satellite Stations.

All Location records are required to have a **State/Country or Location Name Part 1**, and unless they are state-wide or country-wide records, must also have a **City or Location Name Part 2**.

All coordinates in Location records use the WGS84 (World Geodetic System 1984) coordinate system.

Locations and the Map

In order for a Location record to appear on the Map screen, it must have two things:

- The geometry (spatial shape) of the location corresponding to the **Location Type**s above must be drawn on the map. For example, a Center Point and Radius location must have a center point placed on the map, and a radius. A Polygon location must have the coordinates of the points of the polygon drawn on the map.
- It must have a **Map Layer** name. This determines which layer will store the Location's geometry.

If either of these two things are missing, the Location record will not be displayed on the map. Such a record is said to be not "on the map". Note that Geosynchronous Satellite and Non-geosynchronous Satellite records never appear on the map.

Layers

The Map will display any number of layers. Layers may be of the following types:

- Image. Image layers are used to display background information on the map, such as topographic elevations. These layers are never used to store Location geometries.
- Point. These layers may store Location records of type Single Point.
- Line. These layers may store Location records of type Line.
- Polygon. These layers may store Location records of type Polygon or Center Point and Radius. (A Center Point and Radius (circle) is simulated by automatically creating a polygon of 100 sides.)

Layers may contain geometries of only one type. You cannot mix Point geometries with Line or Polygon/Circle geometries within a single layer.

Layers have a name, which is assigned when the layer is first created. When Location records are put "on the map", the layer name appears in the **Map Layer** data item in the Tree View.

Location records in a layer have labels, which are names that appear on the map. If a Location record has a non-blank **City**, this is used as the label, otherwise the **State/Country** is used. Since there are thousands of Locations records, labels would crowd the screen and make it unreadable. To avoid this, the Map uses a "smart labeling" algorithm which hides labels that would otherwise collide with one another on the screen. As you zoom in closer, more labels become visible.

Layers have display characteristics, such as line color and thickness, fill color, opacity, label font, size and color, etc. In GIS terminology, the layer is said to have a "symbology". When records are selected on the map, they have their own symbology as well. You may customize symbologies to your liking.

Display-only Layers

Some layers do not contain EL-CID Location records. Such layers are generally used for informational display only to aid in the positioning of other locations, or to display other useful information on the map. A layer is marked display-only when it is created. All image layers are display-only.

Special Layers

There are three special layers displayed on the Map, which you may not manipulate:

- Accepted Cert Points
  Accepted Cert Lines
- Accepted Cert Areas

These layers contain Accepted Location records with point, line, and polygon geometries (respectively). When a Certification Application is approved by NTIA, the Location records contained within the Certification are copied to Accepted Location records. These records may not be modified by anyone -- not even Certifiers. This preserves the integrity of the approved Certification's location data. (Accepted Location records may be deleted by Certifiers when they re-certify a Certification record in the Operating Characteristics and Recommendations screen.) You have the option of displaying Accepted Cert layers or not when viewing the Map.

Where Is the Map Data?

Map files are stored in a folder named "Map", which is a subfolder in the EL-CID program folder. (The EL-CID program folder is determined when EL-CID is installed and defaults to "C:\Program Files\El-cid".) Since Location records are stored in the EL-CID database, but the geometries are stored in the map files, **it is imperative that you never manipulate the files in the Map folder using other software besides EL-CID**. Doing so could corrupt the map data and cause EL-CID to crash. Files in the Map folder should never be shared with other GIS software. If you want to use EL-CID map data in another GIS application, copy the Map files to some other folder on your hard drive and use them from there.

How is Map Data Exported?

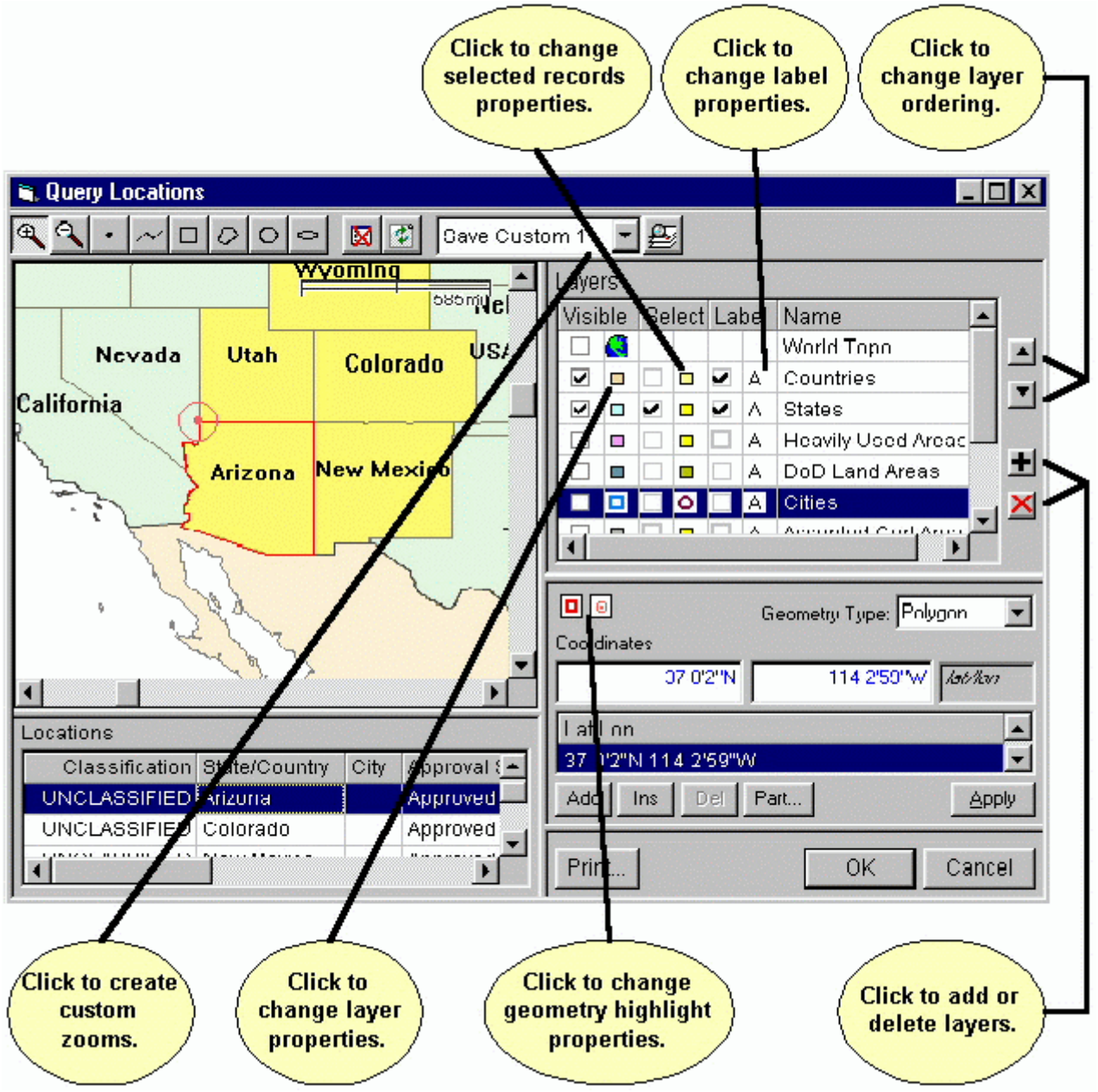
When you export EL-CID Location records (or export Certifications containing Location records), the geometry data is exported along with the rest of the EL-CID data in XML format. Specifically, the geometry data is exported in OpenGIS Geography Markup Language (GML) version 2.1.2, which is a standard developed by the GIS Consortium for the exchange of geographic information. More information is available at the GIS Consortium website

http://www.opengis.net/gml/

Customizing the Map

Whenever displaying the Map, you may customize the following things:

- You may change the order in which layers are drawn on the map.
- For each layer, you may customize the line thickness, type, and color, the fill color, and the opacity of the layer.
- For each layer, you may customize how selected records are displayed.
- For each layer, you may customize label fonts, size, and coloring.
- You may customize the line thickness and color of geometries that are highlighted on the map.
- You may create up to 3 Custom Zoom areas.



Whenever you click the **OK** button, your customizations are remembered and will be restored the next time you display the map. If you click the **Cancel** button, the changes are discarded. Customizing your map does not affect how other EL-CID users see the data on their map.

Layer display properties, such as line thickness and color, fill color, fonts, and opacity are called the "symbology" of the layer.

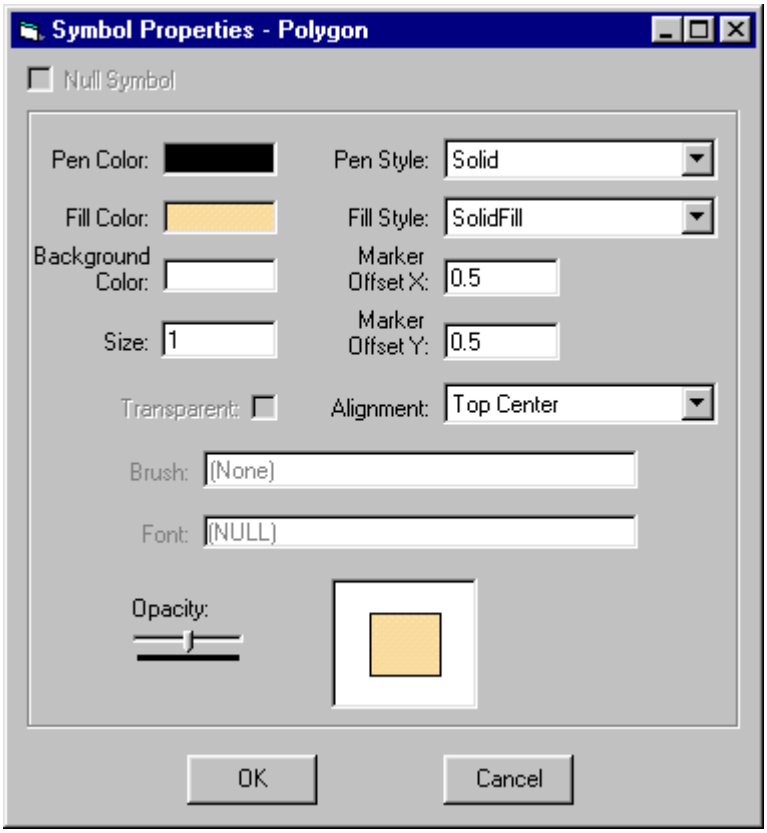
Changing Layer Order

The layers listed in the **Layers** legend at the upper right of the map screen are drawn top to bottom. In other words, the top layer in the legend is drawn first, then the next layer is drawn on the map on top of the first, and so on. The bottom layer in the legend is drawn last on top of all previous layers. You can change this order by clicking on any layer to highlight it, then clicking the Up  or Down  buttons. The ordering of layers matters because layers can obscure the layers drawn underneath, depending upon their opacity and other display properties.

Tip: For the best results, image layers (such as topographic images) should be the topmost (topmost in the **Layers** legend; drawn first). Polygon layers should come next, followed by point and line layers.

Changing Layer Display Properties

To change how layers are displayed, click the small icon ◻ next to the layer in the **Visible** column. The **Symbol Properties** screen appears.



Click **Cancel** to abandon changing the layer display properties, or set the display properties desired and click **OK**.

Note: The settings that are enabled on this screen vary depending upon the layer's geometry and the type of layer it is.

Tip: Most layers should have their **Opacity** set to 50% so that they do not obscure layers drawn underneath them. Use the mouse to drag the slider to the midpoint.

Changing How Selected Records are Displayed

When Location records have been selected on the Map, they are displayed using properties different from the layer they are in. For example, in the map screen shown above, Wyoming, Utah, Colorado, Arizona, and New Mexico have been selected and are shaded yellow. To change how selected records are displayed, click the small icon ◻ next to the layer in the **Select** column. The **Symbol Properties** screen appears. See above.

Note: Some layers are display only. These layers do not store geometries of EL-CID Location records. You may not change how selected records are displayed in display-only layers since it is not possible to select records in them.

Changing Label Properties

The font, size, and color can be set for the labels in each layer. To change the label properties, click the small icon  next to the layer in the **Label** column. The **Symbol Properties** screen appears. See above.

Note: Image layers do not have labels and therefore, you cannot change the Label properties of these layers.

Changing Geometry Highlight Properties

The panel in the lower right corner of the Map screen is the **Geometry** editor. When a geometry is displayed in this panel, it is also highlighted on the map. For example, in the map screen shown above, the geometry for Arizona is highlighted in red. There are two sets of properties -- one for the entire geometry, and a second for the current point highlighted in the geometry. For example, in the map screen above, the current geometry point on the border of Arizona is highlighted with a red target. To change either of these display properties, click the small icons  in the **Geometry** editor panel. The **Symbol Properties** screen appears. See above.

Creating and Using Custom Zooms

Custom Zooms permit you to quickly zoom the map to an area of interest. You may create up to three Custom Zooms. To create a Custom Zoom

1. Use the Zoom In  and Zoom Out  buttons on the tool bar to zoom to the area you want to create. To zoom to a rectangular area, click the Zoom In  button, hold down the mouse at one corner of the rectangle on the map and drag the mouse to the other corner of the rectangle. Use the scroll bars to position the map vertically or horizontally.
2. Click the Down Arrow button  in the Predefined Zooms  box on the tool bar and choose either **Save Custom 1**, **Save Custom 2**, or **Save Custom 3**.
3. Click the Zoom button  on the tool bar.

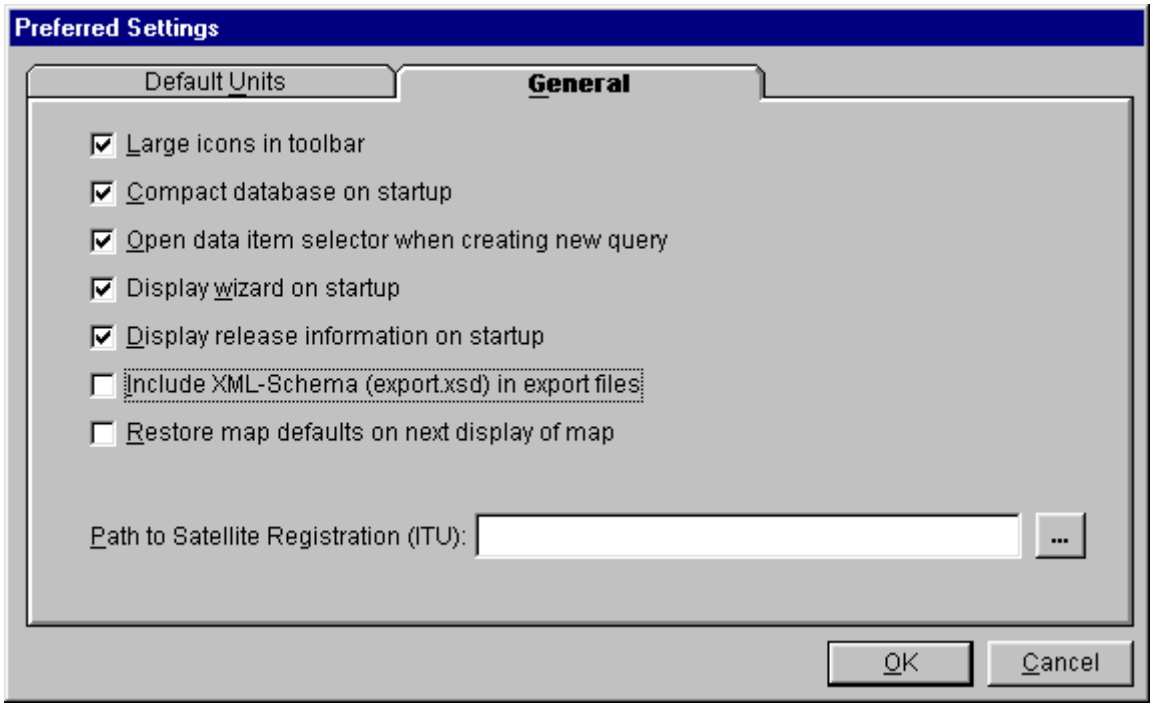
To use a Custom Zoom, click the Down Arrow button  in the Predefined Zooms  box on the tool bar and choose **Restore Custom 1**, **Restore Custom 2**, or **Restore Custom 3**. Then click the Zoom button  . The map will zoom to your previously saved Custom Zoom.

Note: **Restore Custom** entries do not appear in the Predefined Zooms box until you create them.

Restoring Map Defaults

To restore the map display defaults to the original settings when EL-CID was first installed

1. Close the Map screen if it is displayed.
2. Click the Preferences button  on the main EL-CID tool bar, or click **Edit** on the main menu, then click **Preferences**. The **Preferred Settings** screen appears.



Check the **Restore map defaults on next display of map** box, and click **OK**. The next time you display the map, the default settings will have been restored.

Note: Layers that were created after EL-CID was installed will appear at the bottom of the Layers legend. Their display properties will have been randomly picked. You may need to adjust their ordering and display properties for best viewing.

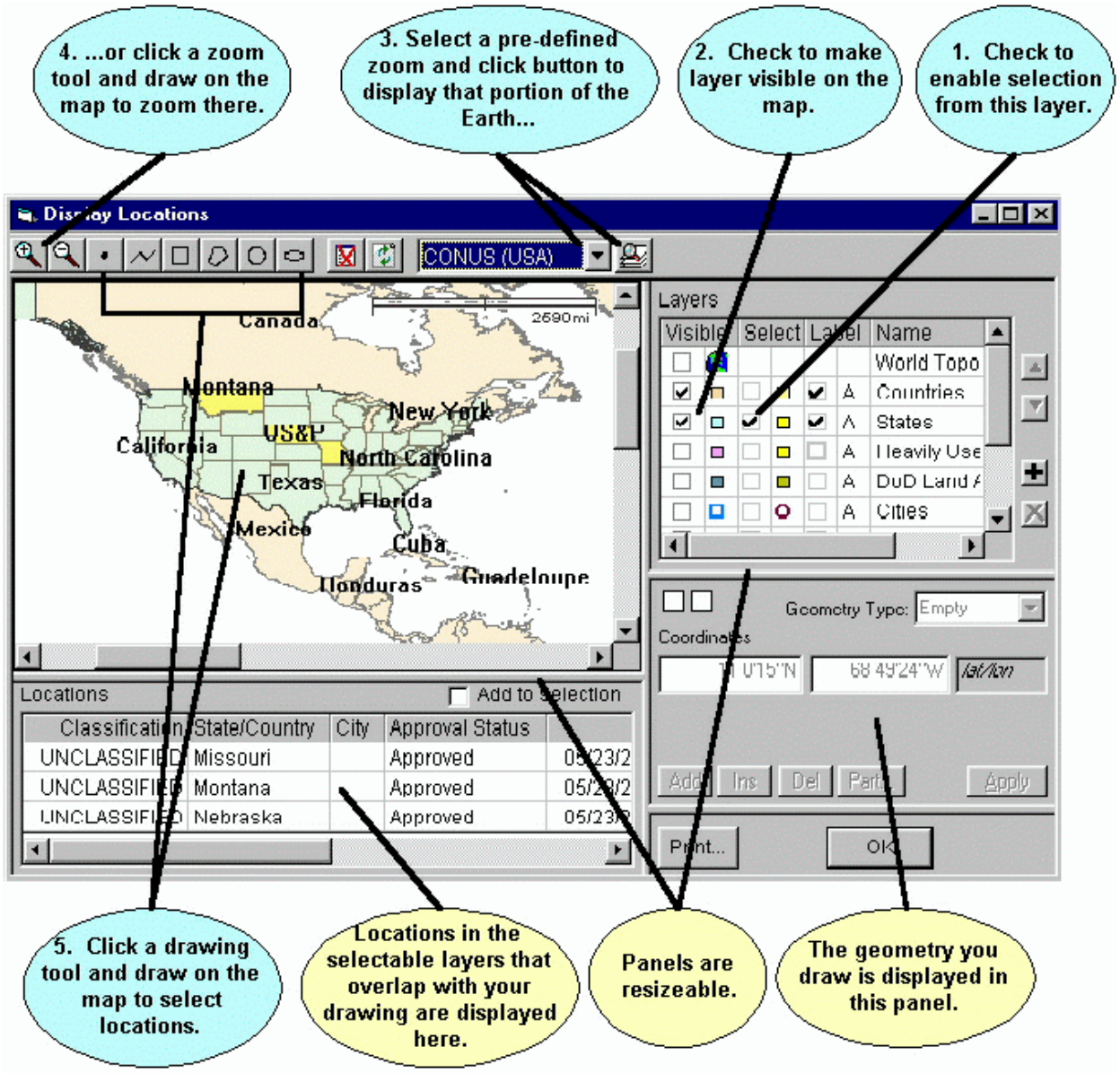
Displaying Location Records

Note: To display Locations in one or more Certification records, see Displaying Certification Locations.

You may display Location records on the Map in several ways.

- Perform a Query on Location records. (Be sure to choose Location in the **Select Record** box on the **Query Builder** screen.) To find Location records that overlap with a geographic area on the map, see Entering a Geographic Select Query Condition. Highlight one or more Location records in the **Query Results** screen. Right-click on any one of the highlighted Location records and choose **Display/Edit on Map** in the popup menu that appears.
- Open a Certification in the Tree View. Click on any **[Location]** node in the tree. Right-click on the [Location] node and choose **Display/Edit on Map** in the popup menu that appears.

In all cases, the **Display Locations** screen appears.



Note: If you highlight a single record in the **Query Results** or **Tree View** screens, and you are permitted to modify the Location record, the **Edit Location** screen appears instead. See Editing Location Records. You may modify the Location record if it is Unapproved or if it is Approved and you are logged in as a Certifier.

The screen consists of 4 resizable panels -- the map itself in the upper left panel, the **Layers** legend in the upper right panel, a **Locations** grid in the lower left panel, and a **Geometry** editor in the lower right panel.

The Location record(s) which you highlighted are listed in the **Locations** grid on this screen and also highlighted on the map. You may examine (but not modify) the geometry of any Location record by clicking on the Location row in the **Locations** grid.

You may select other Location records for display. To select Location records, proceed as follows:

1. In the **Layers** legend (upper right), check the box in the **Select** column next to the layers that contain the Locations you want. For example, to select from the States layer, check the box in the **Select** column to the left of **States**. To avoid confusion, uncheck the boxes next to the layers you do not want to select from.
2. Check the box in the **Visible** column next to the layer (if not already checked) to make the layer display on the map. You may also check the box in the **Label** column to cause the map to display the names of Location records.
3. In the tool bar at the top, select a pre-defined zoom area 

by clicking the Down Arrow button  , then click the Zoom button  to zoom the map display to that area.
4. You can also zoom the map display by clicking the Zoom In button  or Zoom Out button  , then draw on the map to zoom. To draw a zoom rectangle on the map, hold the mouse button down at one corner of the rectangle and drag the mouse to the other corner.
5. Click a drawing tool in the tool bar at the top and draw on the map to select Location records. The drawing tools you may use are:
   -  Draws a single point. Click once on the map to draw the point.
   -  Draws a line. Click on the map, then click a second point on the map. A line is drawn from the first to the second point. Continue clicking on the map to draw additional line segments. To finish drawing, double-click the last point.
   -  Draws a rectangle. Hold down the mouse button down at one corner of the rectangle. Drag the mouse to the opposite corner of the rectangle and release the mouse button.
   -  Draws a polygon. Click the first point of the polygon somewhere on the map. Click the second point. Click the third point. Continue clicking points of the polygon. To finish drawing, double-click the last point of the polygon. Polygons must have a minimum of three points.
   -  Draws a circle. Hold down the mouse button at the center of the circle. Drag the mouse in any direction to define the radius of the circle. Release the mouse button when the mouse cursor is at the desired radius. Note that, unless you are at the equator, the drawn circle is replaced by an ellipse because of the distortion introduced by projecting spherical coordinates onto a flat display. The ellipse will pass through the point at which the mouse cursor is pointing when you release the mouse button.
   -  Draws an ellipse. Hold down the mouse button at one edge of the ellipse. Drag the mouse in any direction to define the other edge of the ellipse. Release the mouse button when the desired elliptical shape is obtained.

Note: To start a new drawing, you must click one of the drawing tool buttons in the tool bar.

Once you've drawn on the map, the selected Location records are shaded on the map (defaults to yellow, but this can be customized) To be selected, Location records must overlap (or just touch) your drawing and they must be in a layer with the **Select** box checked in the **Layers** legend. The selected Location records are also listed in the Locations grid at the lower left corner of the screen.

Note: When you draw on the map in the **Select Locations** screen, you are not creating a location; you are creating a geometry which selects existing Location records that overlap the geometry.

6. Highlight a Location record by clicking the row in the **Locations** grid. The geometry of the highlighted record is displayed on the map (usually red, but this can be customized). The geometry of the highlighted Location record is also displayed in the **Geometry** editor panel at the lower right corner.

   Note: If only one Location record is displayed in the Locations grid, it is automatically highlighted.

You may customize the map display to your liking.

You may print the map by clicking the **Print** button.

Click **OK** to hide the Display Locations screen.

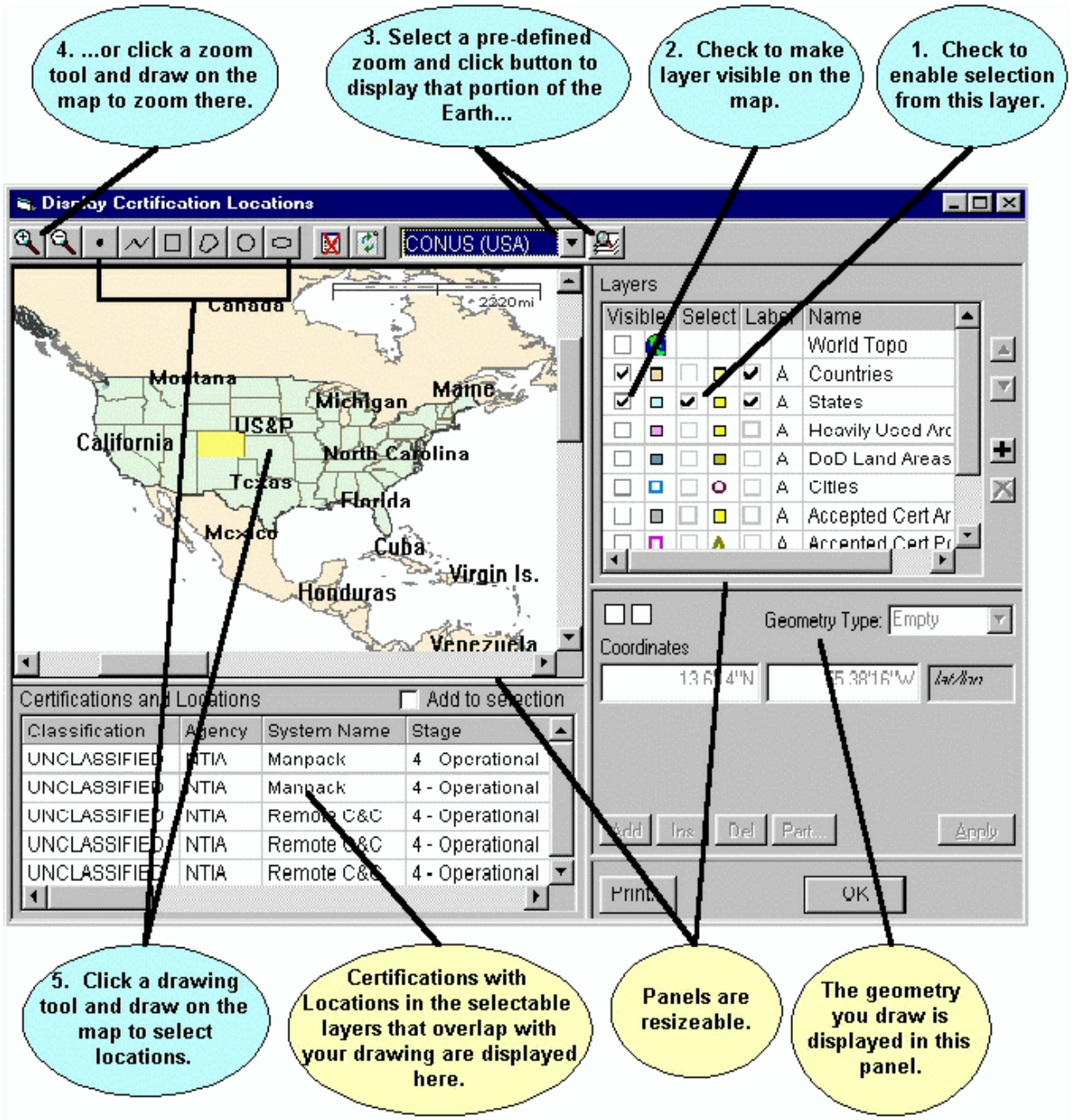
Displaying Certification Locations

Note: To display Location records independently of any Certification records, see Displaying Location Records.

You may display the Location records contained in one or more Certification records on the Map in several ways.

- ✍ Perform a Query on Certification records. (Be sure to choose Certification in the **Select Record** box on the **Query Builder** screen.) To find Certification records that contain Locations that overlap with a geographic area on the map, see Entering a Geographic Select Query Condition. Highlight one or more Certification records in the **Query Results** screen. Right-click any one of the highlighted Certification records and choose **Display/Edit on Map** in the popup menu that appears.
- ✍ Open a Certification in the Tree View. Click on the **[Certification]** node at the top of the tree. Right-click on the [Certification] node and choose **Display/Edit on Map** in the popup menu that appears.

In all cases, the **Display Certification Locations** screen appears.



The screen consists of 4 resizable panels -- the map itself in the upper left panel, the **Layers** legend in the upper right panel, a **Certifications and Locations** grid in the lower left panel, and a **Geometry** editor in the lower right panel.

The Certification records which you highlighted are listed in the **Certifications and Locations** grid. The Locations in these Certification records are also highlighted on the map. You may examine (but not modify) the geometry of any Location record by clicking on the Location row in the **Certifications and Locations** grid.

You may select other Certification records for display. To select Certification records, proceed as follows:

1. In the **Layers** legend (upper right), check the box in the **Select** column next to the layers that contain the Locations you want. For example, to select from the States layer, check the box in the **Select** column to the left of **States**. To avoid confusion, uncheck the boxes next to the layers you do not want to select from.
2. Check the box in the **Visible** column next to the layer (if not already checked) to make the layer display on the map. You may also check the box in the **Label** column to cause the map to display the names of Location records.
3. In the tool bar at the top, select a pre-defined zoom area 

by clicking the Down Arrow button  , then click the Zoom button  to zoom the map display to that area.
4. You can also zoom the map display by clicking the Zoom In button  or Zoom Out button  , then draw on the map to zoom. To draw a zoom rectangle on the map, hold the mouse button down at one corner of the rectangle and drag the mouse to the other corner.
5. Click a drawing tool in the tool bar at the top and draw on the map to select Location records. The drawing tools you may use are:

   -  Draws a single point. Click once on the map to draw the point.
   -  Draws a line. Click on the map, then click a second point on the map. A line is drawn from the first to the second point. Continue clicking on the map to draw additional line segments. To finish drawing, double-click the last point.
   -  Draws a rectangle. Hold down the mouse button down at one corner of the rectangle. Drag the mouse to the opposite corner of the rectangle and release the mouse button.
   -  Draws a polygon. Click the first point of the polygon somewhere on the map. Click the second point. Click the third point. Continue clicking points of the polygon. To finish drawing, double-click the last point of the polygon. Polygons must have a minimum of three points.
   -  Draws a circle. Hold down the mouse button at the center of the circle. Drag the mouse in any direction to define the radius of the circle. Release the mouse button when the mouse cursor is at the desired radius. Note that, unless you are at the equator, the drawn circle is replaced by an ellipse because of the distortion introduced by projecting spherical coordinates onto a flat display. The ellipse will pass through the point at which the mouse cursor is pointing when you release the mouse button.
   -  Draws an ellipse. Hold down the mouse button at one edge of the ellipse. Drag the mouse in any direction to define the other edge of the ellipse. Release the mouse button when the desired elliptical shape is obtained.

   Note: To start a new drawing, you must click one of the drawing tool buttons in the tool bar.

   Once you've drawn on the map, the selected Location records are shaded on the map (defaults to yellow, but this can be customized) To be selected, Location records must overlap (or just touch) your drawing and they must be in a layer with the **Select** box checked in the **Layers** legend.

   Note: When you draw on the map in the **Select Locations** screen, you are not creating a location; you are creating a geometry which selects existing Location records that overlap the geometry.

6. The Certification records that contain the highlighted Location records are listed in the **Certification and Locations** grid. Highlight a Location record by clicking the row in the **Locations** grid. The geometry of the highlighted record is displayed on the map (usually red, but this can be customized). The geometry of the highlighted Location record is also displayed in the **Geometry** editor panel at the lower right corner.

   Note: The **Certifications and Locations** grid may not list all the Locations highlighted on the map. The grid lists the Locations of those Certification records that contain the Locations highlighted on the map. If there is no Certification record containing a Location highlighted on the map, the Location will not be listed in the grid.

   Note: If only one Location record is displayed in the **Certification and Locations** grid, it is automatically highlighted.

   Tip: Certifications with country-wide Locations, such as US&P may not be listed in the **Certifications and Locations** grid. To list such Certifications, you must check the **Select** box next to the **Countries** layer in the **Layers** legend. Then draw anywhere in the country. The country will be selected and highlighted on the map and any Certification records containing the country will be listed in the Certifications and Locations grid. To find Certification records that contain Locations that overlap with a geographic area on the map, perform a Geographic Select in the Query Builder.

You may customize the map display to your liking.

You may print the map by clicking the **Print** button.

Click **OK** to hide the Display Certification Locations screen.

Editing Location Record Geometry

Note: You may only edit a Location record if the record is Unapproved or if Approved and you are logged in as a Certifier. If you need to edit a Location record and you cannot, clone the Location record first.

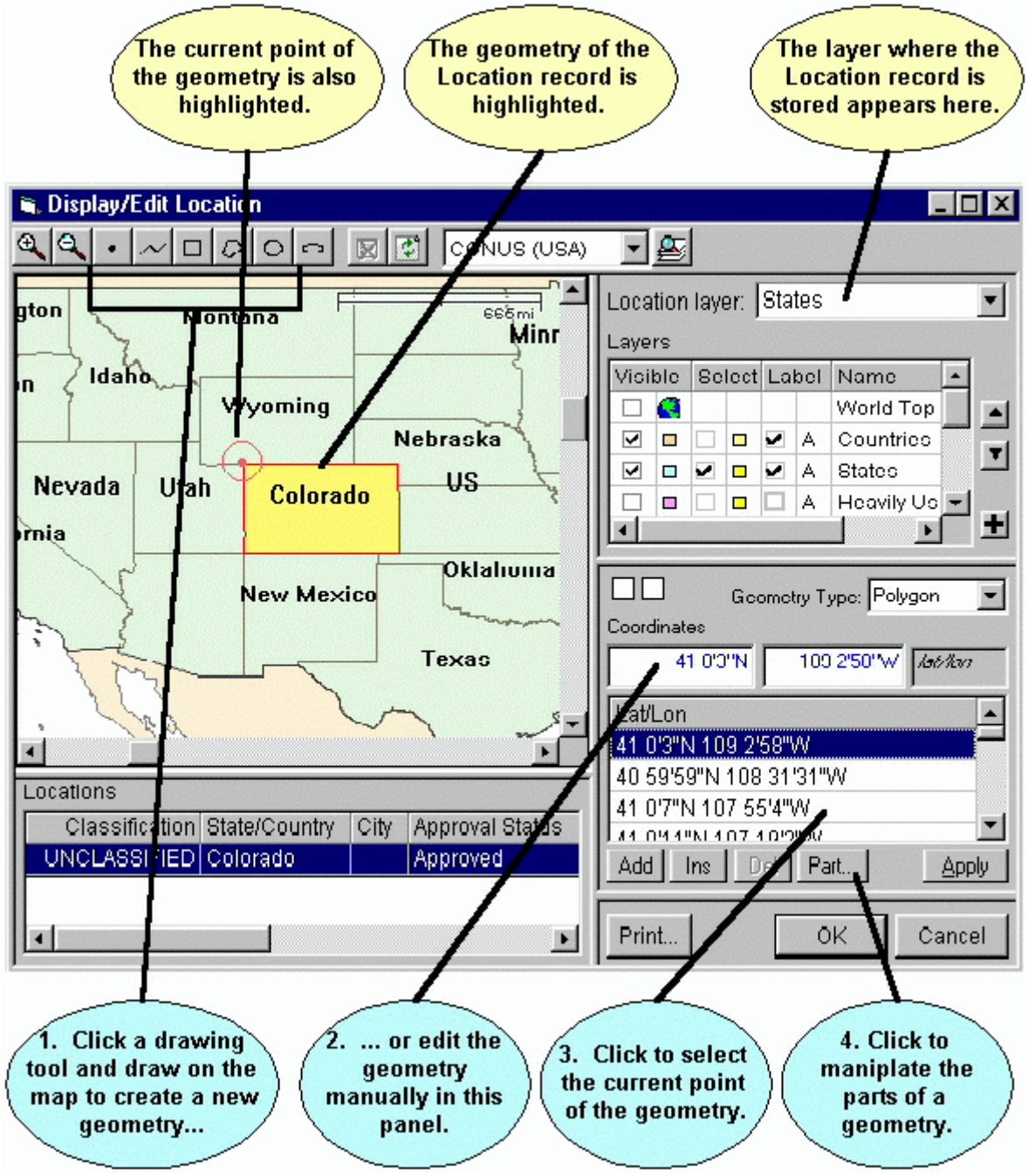
Note: If a Location record does not have a **Map Layer**, it does not appear on the map and you cannot edit its geometry. See Changing Location Record Layer to put the Location on the map. To change the Map Layer that a Location record is stored in, also see Changing Location Record Layer.

Note: This topic discusses editing the geometry (shape) of a Location record. You may also edit Location records in the Tree View.

You may edit the geometry of any single Location record on the Map in several ways.

- ✍ Perform a Query on Location records. (Be sure to choose Location in the **Select Record** box on the **Query Builder** screen.) To find Location records that overlap with a geographic area on the map, see Entering a Geographic Select Query Condition. Highlight exactly one Location record in the **Query Results** screen. Right-click on the highlighted Location record and choose **Display/Edit on Map** in the popup menu that appears.
- ✍ Open a Certification in the Tree View. Click on any **[Location]** node in the tree. Right-click on the [Location] node and choose **Display/Edit on Map** in the popup menu that appears.

In all cases, the **Display/Edit Location** screen appears.



Note: If you highlight more than one record in the **Query Results** screen or you are not permitted to modify the Location record, the Display Locations screen appears instead. You may not modify the Location record if it is Approved and you are not logged in as a Certifier.

The screen consists of 4 resizable panels -- the map itself in the upper left panel, the **Layers** legend in the upper right panel, a **Locations** grid in the lower left panel, and a **Geometry** editor in the lower right panel.

The **Location Layer** box at the top right of the screen shows the layer that the Location record is stored in. You may change the layer by clicking the down arrow button  in this box. You may only change to a layer that can store compatible geometries. For example, you cannot store a Polygon Location record in a layer that stores Points.

The Location record is highlighted on the map (usually yellow, but this can customized). The geometry of the Location record is also highlighted on the map (usually red, but this can be customized). Also, the current point in the geometry is highlighted (usually a red target, but this can be customized).

You can change the geometry (shape) of the Location record in two ways:

1. Draw on the map with a drawing tool, or
2. Edit the geometry manually in the **Geometry** editor panel in the lower right.

Each of these techniques is explained below.

Changing Geometry by Drawing on the Map

To change the geometry of the Location record by drawing on the map, click a drawing tool in the tool bar at the top and draw on the map. The drawing tools you may use are:

-  Draws a single point. Click once on the map to draw the point.
-  Draws a line. Click on the map, then click a second point on the map. A line is drawn from the first to the second point. Continue clicking on the map to draw additional line segments. To finish drawing, double-click the last point.
-  Draws a rectangle. Hold down the mouse button down at one corner of the rectangle. Drag the mouse to the opposite corner of the rectangle and release the mouse button.
-  Draws a polygon. Click the first point of the polygon somewhere on the map. Click the second point. Click the third point. Continue clicking points of the polygon. To finish drawing, double-click the last point of the polygon. Polygons must have a minimum of three points.
-  Draws a circle. Hold down the mouse button at the center of the circle. Drag the mouse in any direction to define the radius of the circle. Release the mouse button when the mouse cursor is at the desired radius. Note that, unless you are at the equator, the drawn circle is replaced by an ellipse because of the distortion introduced by projecting spherical coordinates onto a flat display. The ellipse will pass through the point at which the mouse cursor is pointing when you release the mouse button.
-  Draws an ellipse. Hold down the mouse button at one edge of the ellipse. Drag the mouse in any direction to define the other edge of the ellipse. Release the mouse button when the desired elliptical shape is obtained.

When you have completed the drawing operation, the new geometry is highlighted on the map and also displayed in the **Geometry** editor panel at the lower right. You can fine tune the geometry you've drawn using the Geometry editor as explained below. If you changed the **Geometry Type**, for example, the record started as a Polygon, but you drew a Point, the **Location Layer** box will change to the first compatible layer in the **Layers** legend. Click the down arrow button  in the box to choose a different layer.

Changing Geometry with the Geometry Editor

The **Geometry** editor panel at the lower right of the Map screen consists of four portions -- a **Geometry Type** box, a **Coordinates** box, a **Lat/Lon** grid, and a series of buttons at the bottom. If the Geometry Type is Circle, a **Radius** box also appears. The Lat/Lon grid will not appear if the Geometry Type is Point or Circle, since these geometries do not have multiple points.

To change the Geometry Type, click the down arrow button in the **Geometry Type** box. To learn more about geometry types, see About the Map. Since layers can only store geometries of one type, changing the Geometry Type will also change the **Location Layer** at the top right of the Map screen. The program will automatically pick the first compatible layer. Click the down arrow button in the box to choose a different layer.

To change the coordinates, click in the **Coordinates** box, type in a new latitude and longitude, and click **Apply**. The new Location is highlighted on the map. You can also change coordinates by clicking in the Coordinates box to give it focus, then click on the map. The coordinates of the point you clicked on are entered into the **Coordinates** box.

Similarly, to change the radius of a Circle geometry, click in the **Radius** box, type in a new radius value, and click **Apply**. You can also change radius by clicking in the Radius box to give it focus, then click on the map at the circumference of the circle.

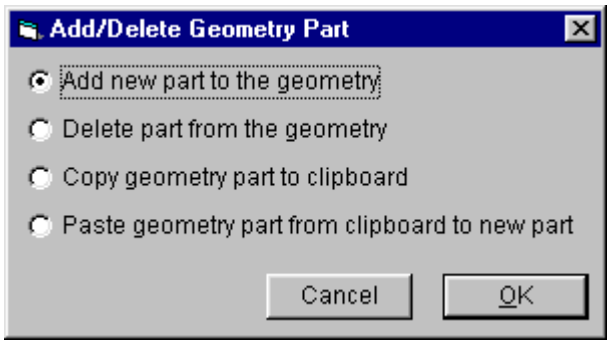
To aid you, the **Coordinates** and **Radius** boxes dynamically update as you move the mouse across the map. If you move the mouse off the map without clicking, they return to their original values.

To change the coordinates of individual points in a Polygon geometry, click the point's row in the **Lat/Lon** grid. The coordinates of the point are displayed in the **Coordinates** box and also highlighted on the map. Type in a new latitude and longitude in the **Coordinates** box, or click on the map.

To delete a point in a Polygon geometry, click the row in the **Lat/Lon** grid, then click the **Del** button. Since the first and last points of a Polygon must be identical, you cannot delete the first or last point of a polygon geometry. Also, since a Polygon must consist of at least 4 points, you cannot delete a point if this would result in only 3 points.

To add a point to a Polygon geometry, click a row in the Lat/Lon grid, then click the **Ins** button. A row is added to the Lat/Lon grid with blank coordinates below the one you clicked. Type in new coordinates in the **Coordinates** box or click on the map to locate the point. The Ins button is disabled if you click the last point. You can also add points to the end of the Lat/Lon grid by clicking the **Add** button.

Polygon geometries may consist of one or more parts. For example, the Location record for North Carolina consists of two parts -- one part for most of North Carolina, and a second part for the coastal barrier islands. If a Polygon geometry contains two or more parts, a **Part** column appears in the **Lat/Lon** grid. Parts are numbered -- 1, 2, 3, etc. To add or delete a part, click on any row of the part in the Lat/Lon grid, then click the **Part...** button. The **Add/Delete Geometry Part** screen appears.



To delete the entire part from the geometry, click the **Delete part from the geometry** radio button and click **OK**. (If a geometry contains only one part, the radio button will be disabled.)

To add a new, blank part to the geometry, click the **Add new part to the geometry** radio button and click **OK**. The part is added to the geometry in the Lat/Lon grid with 4 blank points. You must specify the coordinates of the 4 points and the first and last point of the part must be identical.

To copy the part to the Windows clipboard, click the **Copy geometry part to the clipboard** radio button and click **OK**.

To add a new part to the geometry by pasting the part from the Windows clipboard, click the **Paste geometry part from clipboard to new part** radio button and click **OK**. (If there is no part currently in the Windows clipboard, the radio button will be disabled.)

Tip: You can copy parts from other Location records. Close the **Display/Edit Location** screen. Display the source location in the map, click the **Part** button, and choose **Copy geometry part to the clipboard**. Then come back to the **Display/Edit Location** screen, click the **Part** button, and choose **Paste geometry part from clipboard to new part**.

Finishing

When you have finished editing the geometry, examine the **Location Layer** box at the top right corner of the **Display/Edit Location** screen. Make sure it is set to the desired layer. If it is not, click the down arrow button  in the box and choose the desired layer.

Tip: To remove a Location record from the map, set the Location Layer to blank, or change the geometry to Empty. When you click **OK**, a confirmation message will appear informing you that the record does not have a geometry.

You can print the map by clicking the **Print** button. See Printing the Map.

Click **Cancel** to abandon the edits, or click **OK**. A message appears to confirm that you have changed the geometry or Map Layer of the Location record. Click **OK** to store the changes. If you changed the **Location Layer**, the record will be deleted from the original layer and added to the new layer.

Changing Location Record Layer

In order for a Location record to appear on the Map, it must be assigned to a **Map Layer**. A Location record that has a blank **Map Layer** is said to be not "on the map". This topic explains how to assign a Location record to a layer on the map. It also describes how to change the layer of an existing Location record.

Note: Location records of **Location Type** Geosynchronous or Non-geosynchronous are never put on the map.

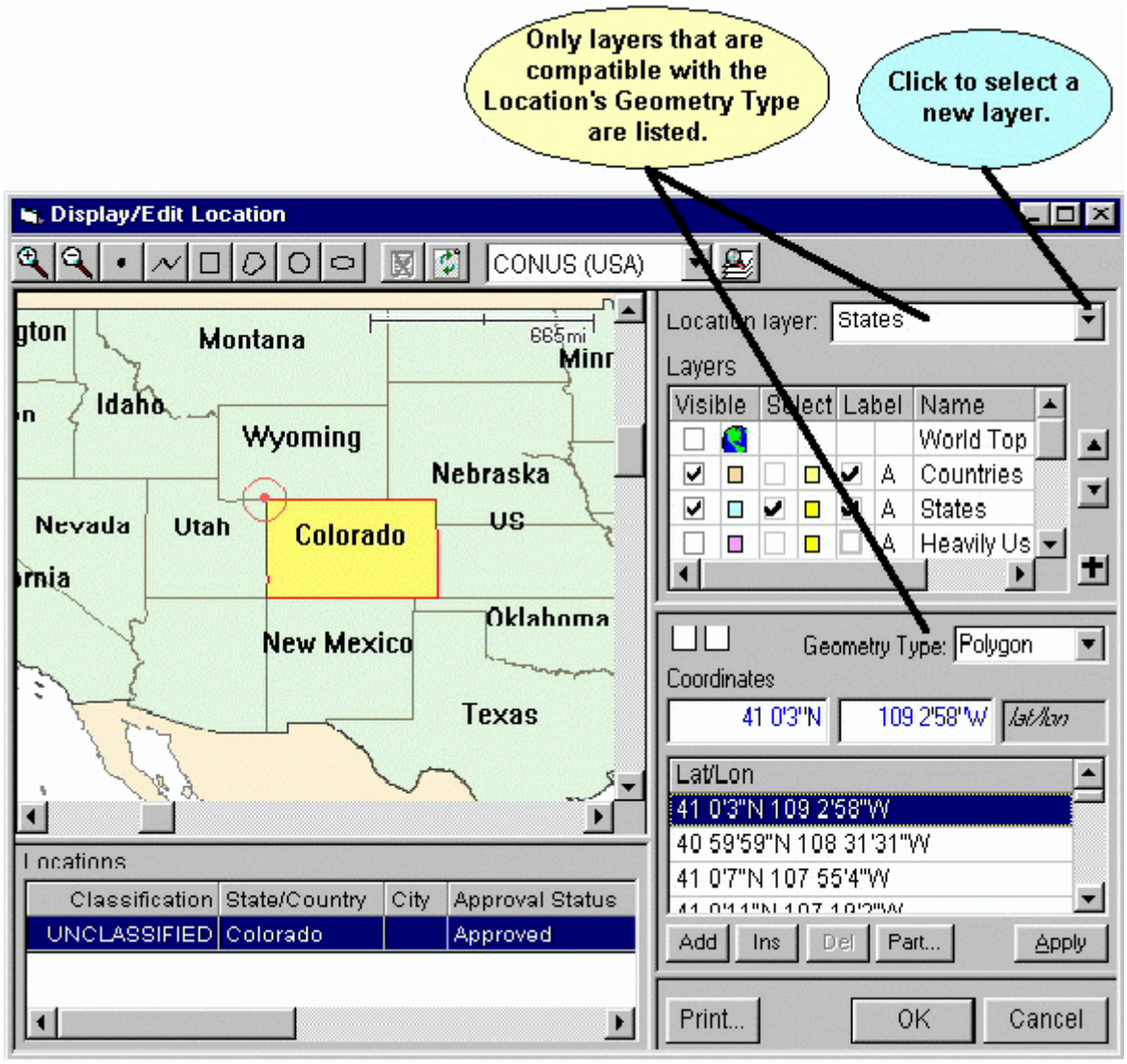
Note: You may only change the **Map Layer** of a Location record if the record is Unapproved or if Approved and you are logged in as a Certifier. If you need to change the Map Layer of a Location record and you cannot, clone the Location record first.

To learn more about layers and geometries, see About the Map.

You may change the **Map Layer** of any single Location record on the Map in several ways.

- Perform a Query on Location records. (Be sure to choose Location in the **Select Record** box on the **Query Builder** screen.) To find Location records that overlap with a geographic area on the map, see Entering a Geographic Select Query Condition. Highlight exactly one Location record in the **Query Results** screen. Right-click on the highlighted Location record and choose **Display/Edit on Map** in the popup menu that appears.
- Open a Certification in the Tree View. Click on any **[Location]** node in the tree. Right-click on the [Location] node and choose **Display/Edit on Map** in the popup menu that appears.

In all cases, the **Display/Edit Location** screen appears.



Note: If you highlight more than one record in the **Query Results** screen or you are not permitted to modify the Location record, the Display Locations screen appears instead. You may not modify the Location record if it is Approved and you are not logged in as a Certifier.

To specify a new layer for the Location record, proceed as follows.

1. If the record does not have a geometry, **Empty** will appear in the **Geometry Type** box. You must specify a geometry for the Location record. See Editing Location Record Geometry.

   In some cases, EL-CID will automatically generate a geometry for the Location record and automatically pick a compatible layer to place it in. For example, for a Single Point location, if you specified the coordinates of the location, EL-CID will automatically generate a Point geometry and pick a layer that stores points (probably Cities). For a Center Point and Radius location, if you entered the coordinates of the center point and radius, then EL-CID will automatically generate a circular polygon for the record and pick a compatible layer to store it in. In these cases, you must still click the **OK** button (see Step 3) to make the changes permanent.

2. Click the down arrow in the **Location Layer** box and choose a layer.
3. Click **OK** to save the change. A message stating that you have changed the geometry or layer of the Location record will appear. Click **OK** to store the changes. The **Display/Edit** Location screen disappears. If you changed the layer, the record is deleted from the old layer and added to the new layer.

You can also edit the geometry (shape) of a Location record on this screen. See Editing Location Record Geometry.

Tip: To remove a Location record from the map, either set the Location Layer to blank, or change the geometry type to Empty and click **OK**. A warning message will appear indicating that the Location lacks a geometry and asking you to confirm that you want to store the record without a geometry.

Creating Location Records

Creating new Location Records is performed in the **Tree View** screen while editing a Certification record.

1. Open a Certification record in the Tree View.
2. Depending upon where you want the new Location record to appear in the Certification tree, click on either the **[Location Information]** node or click on a **[Station]** node. See About the Map for more information on placement of Location records within Certifications.
3. Right-click the highlighted node and choose either **Add New Location** or choose **Add From Map** in the popup menu that appears.

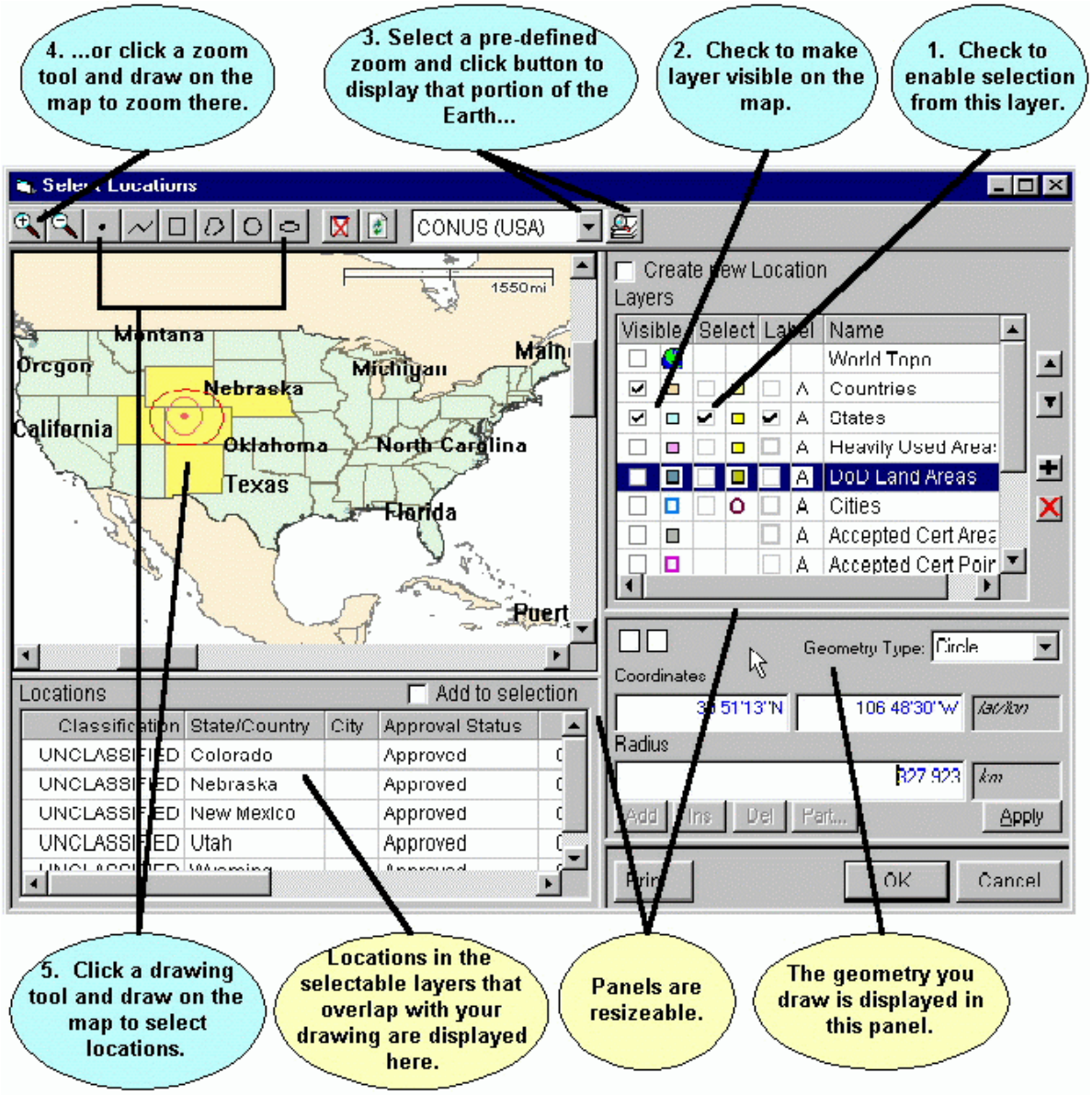
Each choice is explained in greater detail below.

Add New Location.

Choosing this option creates a brand new Location record in the database using the Tree View. You will be required to specify a **State/Country** and a **Location Type** for the location. You may also specify a City. . If non-blank, the City will be used as the label for the Location when displayed on the Map. If City is blank, State/Country will be used for the label. Depending upon the Location Type, you will be required to specify additional data items as well, such as coordinates (latitude and longitude) and satellite orbital parameters. Locations created in this way do not appear on the map until you specify a **Map Layer** and draw the location's geometry on the map. See Changing Location Record Layer and Editing Location Record Geometry.

Add From Map.

This option is generally the easiest and most accurate method to use. It should not be used to create Geosynchronous or Non-geosynchronous satellite locations. The **Select Locations** screen appears.



Check the **Create new Location** box in the upper right corner of the screen. You must now do two things:

1. Draw a geometry for the Location record. See Editing Location Record Geometry.
2. Pick a **Location Layer** for the record. See Changing Location Record Layer.

When you've specified these two things, click **Cancel** to abandon adding the new Location record, or click the **OK** button. The Select Locations screen disappears and new **[Location]** node appears in the **Tree View** screen.

You will be required to specify a **State/Country** for the location. You may also specify a **City**. If non-blank, the City will be used as the label for the Location when displayed on the Map. If City is blank, State/Country will be used for the label.

Note: Changing the **Location Type** will erase the Location record from the Map. (The **Map Layer** will blank.) See Changing Location Record Layer to put the Location back on the map.

Printing the Map

You can print the map in two ways:

1. When displaying the Map screen, click the **Print** button, or
2. Print a Certification. You have the option to print the Locations records contained within the Certification by checking the **Map** box on the **Print Options** screen.

In either case, the map is printed using the zooms, colors, fonts, etc. that were set the last time you displayed the map. See Customizing the Map for more information.

In either case, the Print Preview screen appears. See Previewing Printouts. You can produce a hardcopy printout by clicking the print button  on the preview screen.

Adding and Deleting Layers

Note: Adding and Deleting map layers in EL-CID should only be attempted by expert users.

Deleting Layers

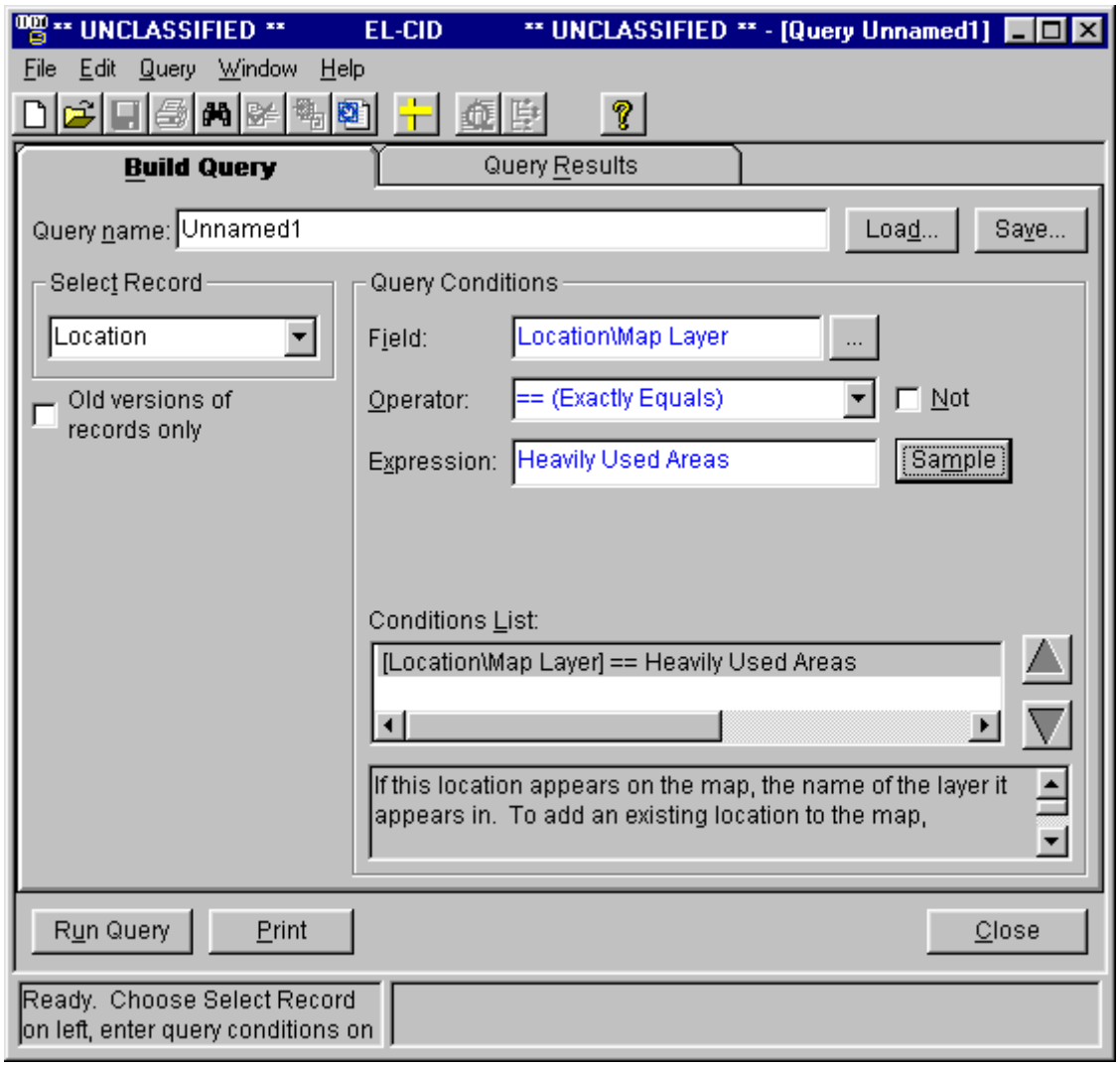
You may delete a layer from the map only if the layer does not contain any Location records (it is empty), or if the layer is display-only. To delete a layer from the map

1. Click on the layer to highlight it in the **Layer** legend in the upper right corner of the Map screen.
2. Click the Delete Layer button  .

The layer will be deleted. If the Layer contains any EL-CID Location records, you will see the following message

and the layer will not be deleted. In order to delete the layer, you must first delete all the Location records in EL-CID that are in this layer. Generally, you should not do this unless you created the layer and the Location records in question. To delete all the Location records in a layer

1. Click **OK** to close the Map screen.
2. Build a Query to select all Location records with the **Map Layer** in question. Your screen should look like this



Notice "Location" in the **Select Record** box. In the **Expression** box, fill in the Map Layer in question.

3. Run the query. In the **Query Results** screen, highlight all the records. Right-click any record and choose **Delete** in the popup menu that appears. Depending upon the number of records to be deleted, this may take a while.
4. Display the Map screen and delete the layer.

Adding Layers to the Map

You may add layers of four types to the Map:

1. Image layers. These are layers containing a bitmap image used for display only. For example, it is possible to create a topographic bitmap file using GIS software and use the bitmap in EL-CID.
2. Display-only layers. These are layers containing geographic information (so-called "feature" data) you've obtained from an external source. You do not store EL-CID Location records in these layers. You may not modify the information in these layers after adding them to EL-CID. To create a display-only layer for EL-CID, you must have software that can create ESRI Shape Files (.shp), such as ArcView or ArcGIS. There are sources of pre-built Shape Files available on the Internet. See, for example, the following website

   http://www.geographynetwork.com
3. Empty regular layers. These are layers you create and into which you store EL-CID Location records. When you create the layer, you give it a name and a geometry type (Point, Line, or Polygon).
4. Imported Layers. These are layers containing geographic information (so-called "feature" data) you've obtained from an external source. You must have software that can create ESRI Shape Files (.shp), such as ArcView or ArcGIS or you must obtain pre-built Shape Files from an external source. When you import these layers, you also create EL-CID Location records for each record you import from the Shape File.

Note: The coordinates of data imported into any of these layers must use the WGS84 (World Geodetic System 1984) coordinate system.

Creating layers for each of these four types is explained below.

Adding Image Layers

In order to add an Image Layer to EL-CID, you must have two things created using other software:

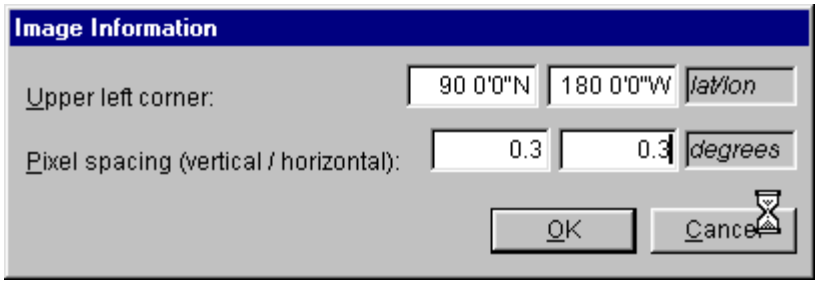
1. A .bmp, .gif, .tif, or .jpg file containing the bitmap image. The image must have been created using the WGS84 coordinate system, and
2. A .bmw, .giw, .tiw, or .jfw file containing the geo-referencing information for the bitmap. This is a text file that tells the map how to locate and size the bitmap image on the surface of the Earth. This "World File" must have the same name as the image file, except for .bmw, .giw, .tfw, or .jpw (respectively). The World File is an ASCII text file contain 6 numbers as described below:
   - ✍ Line 1: PixelWidth (must be positive number)

     Line 2: Rotation against X axis (for future implementation)
   - ✍ Line 3: Rotation against Y axis (for future implementation)
   - ✍ Line 4: PixelHeight (must be negative number)
   - ✍ Line 5: X coordinate value of the Origin point that maps to the upper left corner of image
   - ✍ Line 6: Y coordinate value of the Origin point that maps to the upper left corner of image

   The numbers in lines 1 and 4 through 6 are decimal degrees, south and west hemispheres negative. An example of a world file is:

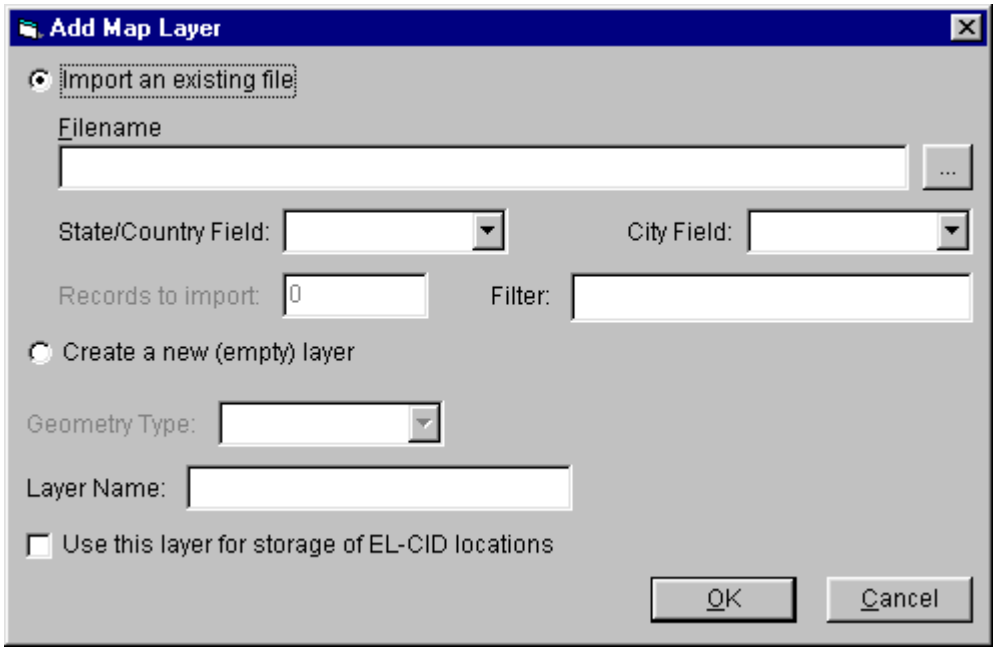
   0.3
   0.0
   0.0
   -0.3
   -180.0
   90

If you do not have this file, EL-CID will prompt you with the following **Image Information** screen for the necessary information and create the World File. You must be prepared to enter the required numbers.



Proceed as follows to add the Image Layer to the map.

1. Click the Add Layer button on the Map screen. The **Add Map Layer** screen appears.



2. Check the **Import an existing file** radio button.
3. Click the Browse ... button, locate your .bmp, .gif, .tif, or .jpg file and click **Open**.
4. Type a name for the layer in the **Layer Name** box. Layer names should be as short as possible so they will fit comfortably on the Map screen **Layers** legend.
5. Click **OK**. If the "World File" mentioned above cannot be found in the same folder as the image file, the already-mentioned **Image Information** screen will appear.
6. The **Add Map Layer** screen will disappear and the Map screen will reappear with the new Image layer at the bottom of the **Layers** legend. Click the new layer to highlight it, and use the up button to move the layer to the top of the legend. Check the box in the **Visible** column to make the new layer appear on the map.

Adding Display-only Layers

In order to add a Display-only layer to the map, you must have an ESRI Shape File containing the geographic data you wish to display. Shape Files are created with other software, such as ArcView and ArcGIS (trademarks of ESRI Inc.). A Shape File actually consists of several files:

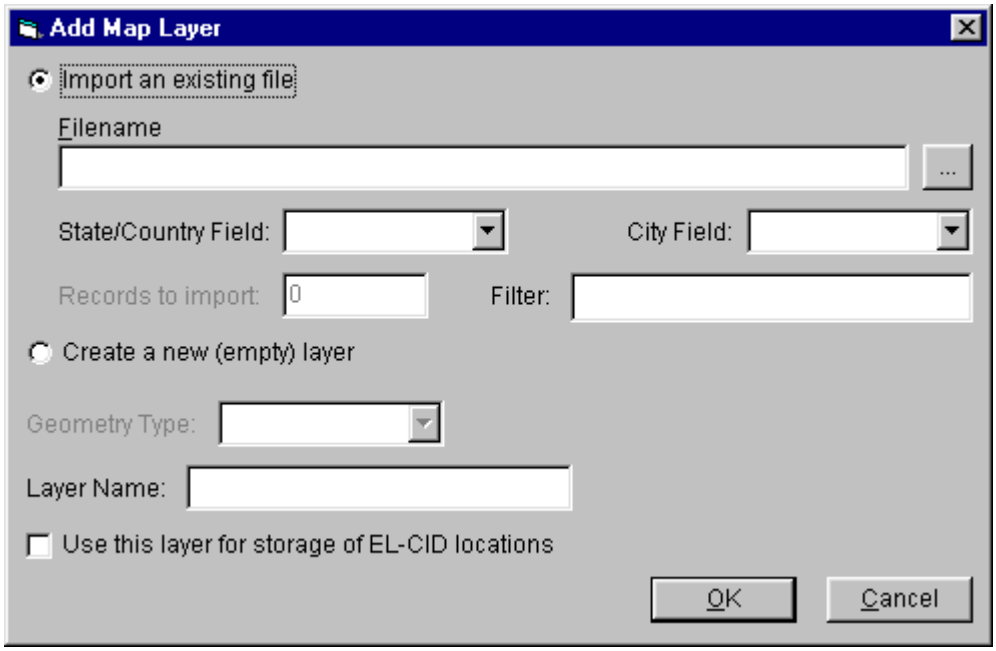
- A .shp file containing the geometries of the records.
  A .dbf file containing the records, including a text field containing the record labels.
- Several supporting index files (.shx, .spx).

All of these files must exist together in a single folder somewhere on your hard drive and they must have the same file name except for the extension.

The coordinates of the points in the geometries must be WGS84 (World Geodetic System 1984).

To add a Display-only layer to the Map, proceed as follows.

1. Click the Add Layer button on the Map screen. The **Add Map Layer** screen appears.



2. Check the **Import an existing file** radio button.
3. Click the Browse button, locate your .shp file and click **Open**.
4. Click the Down Arrow button in the **City Field** box and choose the field to be used as the label for the records. If no fields are listed, there are no text fields in the .dbf file. You will not be able to import the Shape File in this case.

5. (Optional). Enter a filter constraint in the **Filter** box. This is used to limit the import to only the records that meet the filter constraint. In order to use a filter, you must know the names and formats of the fields in the .dbf file. (You will need a .dbf viewing application, such as Microsoft Access or Microsoft Visual FoxPro.) The syntax for the filter is

   Field Op Value

   where:

   - Field is the name of the field in the .dbf file.

     Op is "=", ">", "<", or "<>"

   - Value is the value to be tested against the Field.

   Examples:

   DoD = True
   Population > 10000
   Agency <> "NTIA"

6. Type a name for the layer in the **Layer Name** box. Layer names should be as short as possible so they will fit comfortably on the **Layers** legend.
7. Leave the **Use this layer for storage of EL-CID locations** box unchecked.
8. Click **OK**.

The data in the Shape File that meet your Filter constraint (if any) are copied from the Shape File into the EL-CID map database. Each datum is given a label from the field you specify for **City Field**. Note that the original Shape File is not altered by this procedure and may be deleted after you've completed the import.

Adding Empty Regular Layers

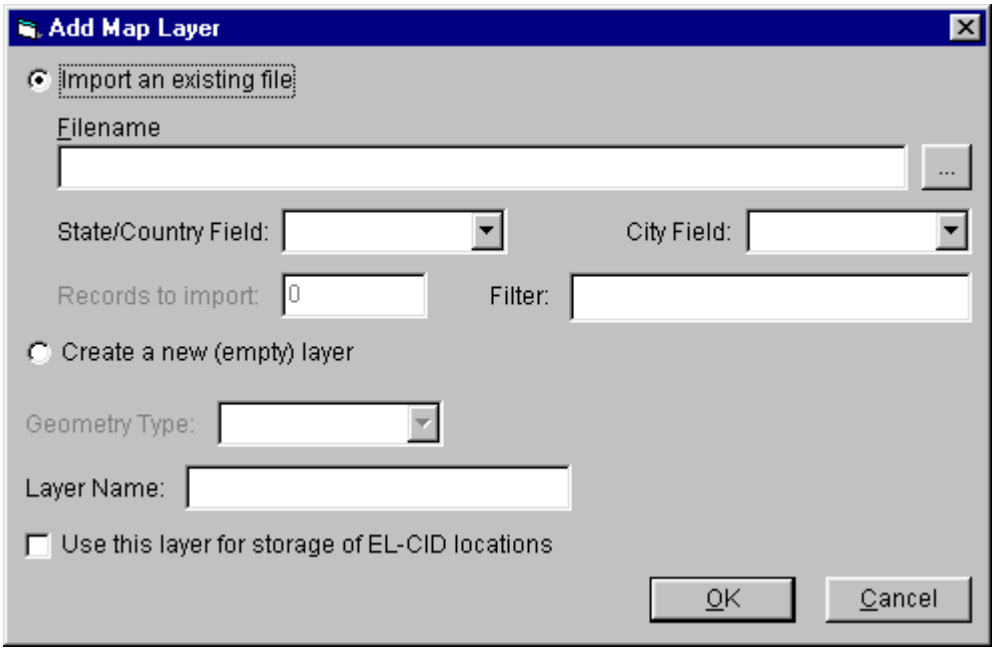
Empty Regular Layers are used to store EL-CID Location records. If you create such layers, store EL-CID Location records in them, use the Location records in your Certification Applications, and send the Certification Applications to other users, your layer will appear on those user's Map screens after importing your Certification Applications. Therefore, you should avoid creating new regular layers. Try to use one of the existing layers for your Locations.

You should name your layer carefully. Once a layer has been created and Location records have been added to it, it is difficult to delete or rename the layer. Layer names should be as short as possible so they will fit comfortably in the **Layers** legend on the Map screen. Also, since a layer may contain geometries of only one type (Point, Line, or Polygon/Circle), it's a good idea to indicate the geometry type in the layer name. For example, NASA might create the following layers:

Ground Station Areas
Ground Station Lines
Ground Station Points

To add an Empty Regular Layer to the map, proceed as follows:

1. Click the Add Layer button on the Map screen. The **Add Map Layer** screen appears.



2. Check the **Create a new (empty) layer** radio button.
3. Pick a geometry type for the layer in the **Geometry Type** box.
4. Type a name for the layer in the **Layer Name** box.
5. Check the **Use this layer for storage of EL-CID locations** box.
6. Click **OK**.

Adding Imported Layers

In order to add an Imported Layer to the map, you must have an ESRI Shape File containing the geographic data you wish to import. Shape Files are created with other software, such as ArcView and ArcGIS (trademarks of ESRI Inc.). A Shape File actually consists of several files:

- A .shp file containing the geometries of the records.

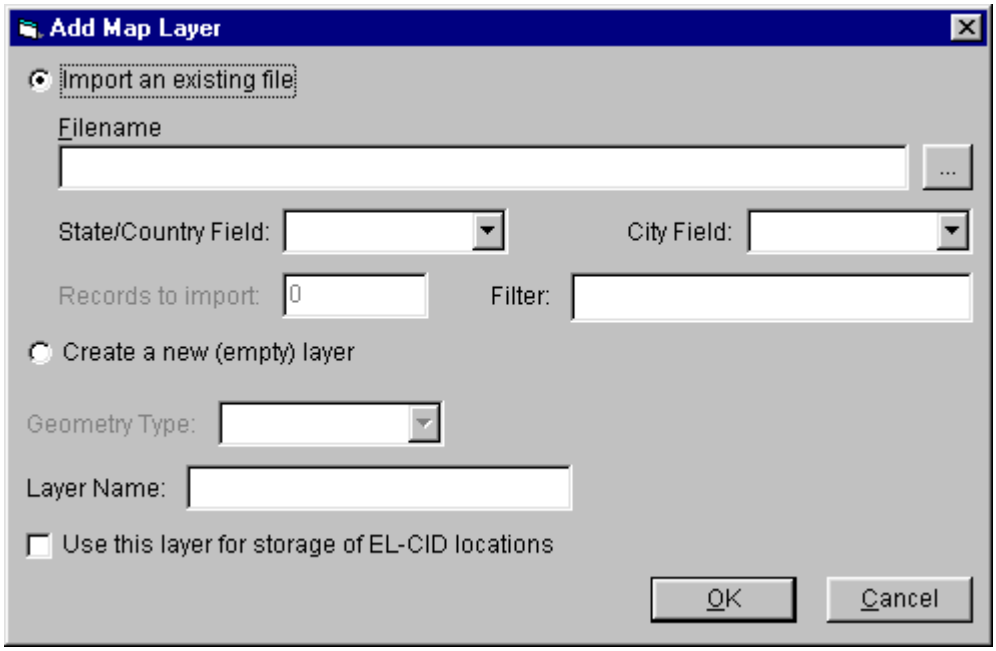
  A .dbf file containing the records, including a text field containing the record labels.
- Several supporting index files (.shx, .spx).

All of these files must exist together in a single folder somewhere on your hard drive and they must have the same file name except for the extension.

The coordinates of the points in the geometries must be WGS84 (World Geodetic System 1984).

To add an Imported Layer to the Map, proceed as follows.

1. Click the Add Layer button on the Map screen. The **Add Map Layer** screen appears.



2. Check the **Import an existing file** radio button.
3. Click the Browse button, locate your .shp file and click **Open**.
4. Click the Down Arrow button in the **State/Country Field** box and choose the field to be used as the State/Country for the imported EL-CID Location record. If no fields are listed, you cannot import the Shape File.
5. Click the Down Arrow button in the **City Field** box and choose the field to be used as the City for the imported EL-CID Location record. This field will also become the label of the records on the map. The City field and the State/Country field may be the same. If City Field is left blank, the State/Country Field will be used as the label.

6. (Optional). Enter a filter constraint in the **Filter** box. This is used to limit the import to only the records that meet the filter constraint. In order to use a filter, you must know the names and formats of the fields in the .dbf file. (You will need a .dbf viewing application, such as Microsoft Access or Microsoft Visual FoxPro.) The syntax for the filter is

   Field Op Value

   where:

   - Field is the name of the field in the .dbf file.

     Op is "=", ">", "<", or "<>"

   - Value is the value to be tested against the Field.

   Examples:

   DoD = True
   Population > 10000
   Agency <> "NTIA"
7. Type a name for the layer in the **Layer Name** box.
8. Check the **Use this layer for storage of EL-CID locations** box.
9. Click **OK**.

The records in the Shape File that meet the Filter constraint (if any) will be copied into the EL-CID database. An EL-CID Location record will be created for each record copied. Note that the original Shape File is not altered by this procedure and may be deleted after you've completed the import.

Questions and Answers

Q: How do I rename a layer?

A: Sorry, a layer rename capability is currently not available. Choose layers name carefully! In order to rename a layer, you must

1. Create the new layer.
2. Move all the Location records (if any) from the old layer to the new layer. This must be done one record at a time.
3. Delete the old layer.

Another method is possible if you are proficient with WinZIP and using Search/Replace in your text editor:

1. Perform a query on all Location records in the old layer. (See above under Deleting Layers for a sample Query Builder screen.)
2. Export all the selected Location records from the Query Results.
3. Using WinZIP, extract the export.xml file from the .cid file you created in Step 2.
4. Using the Search/Replace capability of your text editor, replace the old layer name with the new layer name throughout the export.xml file. The layer name is surrounded by the tags <LayerName> and </LayerName>. (It's a huge file, so you must use a text editor that can handle very large files.)
5. Using WinZIP, put the modified export.xml file back into the .cid file you created in Step 2.
6. Delete all the Location records in the old layer.
7. Import the .cid file into EL-CID. The new layer will automatically be created.
8. Delete the old layer.
9. You'll need to reset the display attributes of the new layer in the Map screen.

Q: Somebody gave me a .bmp file I'd like to use as an Image Layer in EL-CID, but I don't have this ".bmw" thingy and I don't know the Image Information parameters. What can I do?

A: See if the person who created the .bmp file can create a World File (.bmw) for you (many GIS applications can do this automatically) or can tell you the coordinates of the image's upper left corner and horizontal and vertical spacing covered by each pixel. If you know the upper left and lower right corners of the image, you can compute the pixel spacing from the number of horizontal and vertical pixels in the image. Divide the width of the image in decimal degrees by the number of horizontal pixels, and divide the height of the image in decimal degrees by the number of vertical pixels. The World Topo file supplied with EL-CID, for example, covers the entire Earth and is 1200x600 pixels. Hence the upper left corner is at 90, -180 and 360/1200=0.3 and 180/600=0.3. Also remember that the image must have been created using the WGS84 coordinate system.

Q: I have a Shape File someone gave me with thousands of records in it. I really only want a few of the records. How can I import just those records into EL-CID?

A: Try to use the Filter capability when adding a new Import Layer. First examine the .dbf file using a FoxPro-compatible program, such as Microsoft Visual FoxPro or Microsoft Access. After you create the Import Layer, you can move the desired records from the Import Layer to another layer of the same geometry type (Point, Line, or Polygon/Circle). Then delete all the Location records in the Import Layer and delete the Import Layer.

Q: I see that EL-CID has Shape Files in the Map folder. Can I use these Shape Files in my GIS application?

A: Yes, but you must first copy the files (all the files with the desired layer name) from the EL-CID Map folder to another location on your hard drive. Never share the files in the EL-CID Map folder with another application.

Q: I imported a few thousand records from a Shape File somebody gave me. Will these records show up in the database of other EL-CID users?

A: If you use any of the generated Location records in a Certification, export the Certification, and send it to another EL-CID user, your new layer will show up in their map, but their layer will contain only the Location records you exported with the Certification.

Q: OK, but I'd like for my buddy to have all the Location records I imported. How do I send them all to him?

A: Perform a query on Locations where the **Map Layer** is the name of the Import Layer you created. (See above under Deleting Layers for a sample Query Builder screen.) Export all the selected records from the **Query Results** screen. Send him the .cid file you exported.

Q: My buddy gave me a Shape File, but he says the coordinates use Clark86, not WGS84. What can I do?

A: If you import this Shape File, the geometry coordinates will be wrong! Ask him to convert to WGS84 and re-create the Shape File. Many GIS programs have a map projection capability to do this.

Final Note: EL-CID is not intended to be a general-purpose Geographic Information System (GIS). If the answers to the questions above disappoint you, you need to acquire a real GIS software package such as ArcView or ArcGIS.

Trunking Systems

About Trunking Systems

Sections 10.8.1 and 10.8.2 of the NTIA Manual require Federal agencies to submit requests to NTIA for new or expanded Trunking Systems they employ. EL-CID can be used to meet this requirement.

A Trunking System is just like any other Certification record in EL-CID except that

- It typically has one or more repeaters
- In the Tree View, there is a **[Trunking Information]** node in which much of the data required by Sections 10.8.1, and 10.8.2 is entered.
- You are required to specify a location for each base station and repeater in the Trunking System as well as a location for the overall Trunking System.

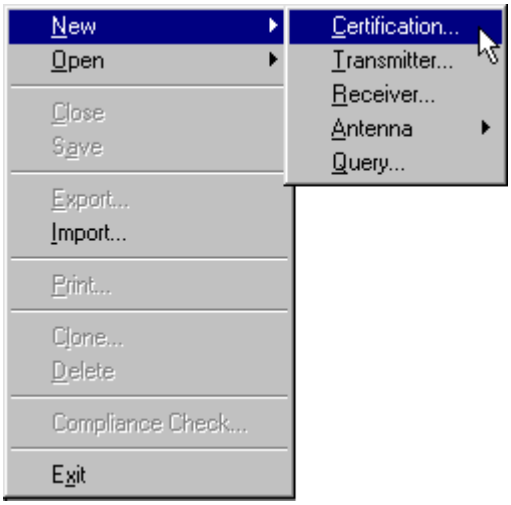
EL-CID is pre-loaded with a number of pre-defined Trunking Templates which you use to construct a Trunking System. The template already has the equipment information entered. This saves much of the data entry. A Trunking Template is also a Certification record with a special flag that indicates it is used as a template for creating Trunking Systems.

To fulfill the requirements of Section 10.8.1, see Creating a New Trunking System.

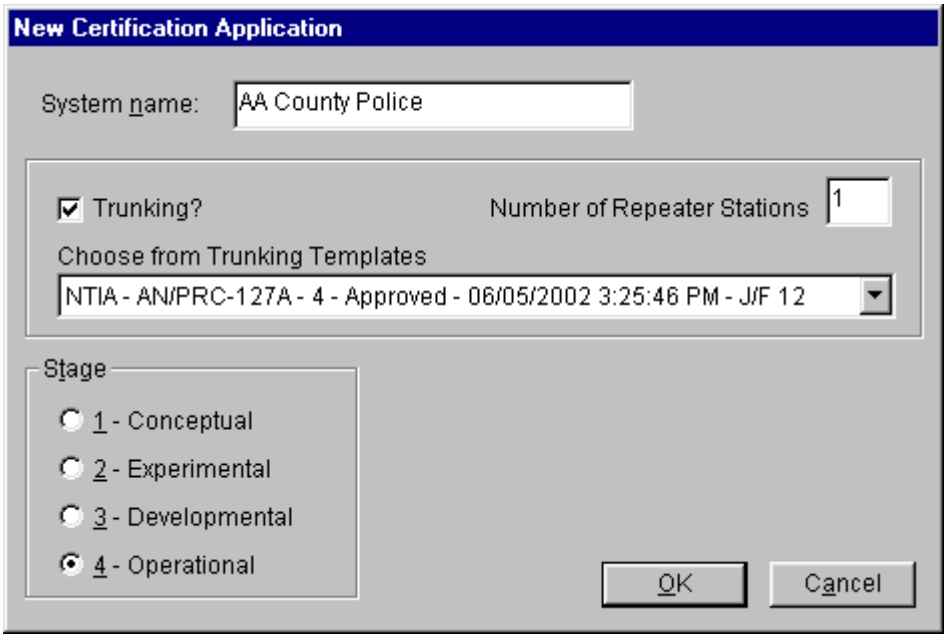
To fulfill the requirements of Section 10.8.2, see Expanding an Existing Trunking System.

Creating a New Trunking System

To create a Trunking System, click the Create Certification button on the tool bar, or click **File** on the main menu, then click **New**, then **Certification**.



The **New Certification Application** screen appears.



Type in a name for the Trunking System in the **System name** box. Check the **Trunking?** check box and choose a **Trunking Template** by clicking the down arrow button and clicking on one of the template records in the dropdown list. Enter the **Number of Repeater Stations** the Trunking System will have. If the Trunking System will not be operational, click on the appropriate **Stage**. To abandon creating the new Trunking System, click **Cancel**, otherwise click **OK**.

The program will create a Certification record by making a copy of the specified **Trunking Template** record and the **Line Diagram** will appear in the Tree View. The diagram will automatically contain the number of repeaters you specified.

Modify the diagram as you would for any other Certification record. See Line Diagram for details.

You can add additional repeaters to the Trunking System by right-clicking on any Station in the diagram and clicking **Add Repeater** in the popup menu that appears. You can delete any repeater (or any other Station) by right-clicking on the Station and clicking **Delete** in the popup menu that appears.

After the diagram is complete, continue entering data required by Section 10.8.1 of the NTIA Manual in the **Tree View** screen..

The following table cross-references the items required by Section 10.8.1, the node in the Tree View where you will enter that data, and the Data Item(s) to fill in. See Tree View for instructions

Note: The paragraph numbers below reflect the May 2003 edition of the NTIA Manual.

NTIA Manual Section 10.8.1 to EL-CID Cross-reference

Para #	**Section 10.8.1 Description**	**EL-CID Tree View Node**	**Data Item(s)**
1	Operating Location	[Location Information] (Note 5)	
2	Equipment Identification	[Transmitter], [Receiver], [Antenna] (Note 7)	Manufacturer, Model Name and Number
3	Docket Number of Previous Certification	[General Information]	SPS Docket Number
4a	Radio Crosspatches	[Trunking Information]	Radio Crosspatches?, Explanation of Radio Crosspatch
4b	Cross-Band	[Trunking Information]	Cross-Band?, Explanation for Cross-Band
4c	Voting	[Trunking Information]	Voting?, Explanation for Voting
4d	Number of Repeater Sites	[Trunking Information]	Number of Repeaters
4e	Number of Telephone Interconnects	[Trunking Information]	Number of Telephone Interconnects
4f	Dispatcher	[Trunking Information]	Dispatcher?, Dispatcher Explanation
4g	Line Diagram	[Diagram]	
4h	Other	[Trunking Information]	Other System Information
5a	Number of Repeaters at Site	[Station]\[Location]	(Stations at the same Location) are assumed co-located)
5b	Geographical Coordinates	[Station]\[Location]	Location Type, Geographical Coordinates
5c	Site Elevation	[Station] (Note 1)	
5d	Antenna Height	[Station] (Note 1)	
5e	Antenna Gain	[Antenna - Linear], [Antenna - Aperture], or [Antenna - Phased Array] (Note 7)	Antenna Main Beam Gain
5f	Transmitter Power	[Transmitter]\[Power] (Note 7)	Power Type, Power

5g	Radius of Operation or Coverage Area	[Station]\[Location] and [Location Point] (Note 6)	Location Type, Geographic Coordinates, Radius, Point Sequence
6a	Frequency Band	[Transmitter]\[Frequency] (Note 7)	Fixed Frequency? Frequency, Lowest Tuned Frequency, Highest Tuned Frequency
6b	Narrowband Capability	[Trunking Information]	Narrowband Capability?
6c	Number of Channels	[Trunking Information]	Number of Channels, Rationale for Number of Channels
7a	System Use: Number and power of Mobiles	[Trunking Information]\[System Use] (Note 3)	Number of Mobiles, Power of mobiles
7b	System Use: Number and power of Portables	[Trunking Information]\[System Use] (Note 3)	Number of Portables, Power of portables
7c	System Use: Number and power of Land Stations	[Trunking Information]\[System Use] (Note 3)	Number of Land Stations, Power of land stations
8	Target Date for System Activation	[General Information]	Target Date for System Activation
9a	Assignments to Be Relinquished	[Trunking Information]\[Assignment] (Note 4)	Relinquished or Used?, Assignment Frequency (lower or discrete), Assignment Frequency Upper, Serial Number
9b	Assignments to Be Used	[Trunking Information]\[Assignment] (Note 4)	Relinquished or Used?, Assignment Frequency (lower or discrete), Assignment Frequency Upper, Serial Number
10	Commercial SMR or Cellular Services Available	[Trunking Information]	Commercial SMR or Cellular Svcs Available?, Justification for Non-Use
11	Sharing Availability	[Trunking Information]	Available for Sharing, Rationale for Non-Availability
12	Estimated Initial Cost of the System	[General Information]	Estimated Initial Cost ($)
13	Separate System Justification	[Trunking Information]	Separate System Justification

14	War Emergency Use	[Trunking Information] (Note 2)	War Emergency Use

Note 1: Logically **Site Elevation** belongs on the [Station]\[Location] node and **Antenna Height** belongs on the antenna node, however, since these nodes are often locked, you enter these values on the [Station] node.

Note 2: Do not confuse this with the **War Emergency Use** data item in the **[General Information]** node.

Note 3: To add a **[System Use]**, right-click on **[Trunking Information]** node and click **Add System Use** in the popup menu that appears.

Note 4: To add an **[Assignment]**, right-click on **[Trunking Information]** node and click **Add Assignment** in the popup menu that appears.

Note 5: Be sure to specify an Operating Location by right-clicking the **[Location Information]** node in the tree; not by right-clicking on a [Station] node.

Note 6: Specify a location for each repeater and each base station by right-clicking each **[Station]** node and add a location. 10.8.1 does not require locations for sites that are not repeaters and are not base station.

Note 7: If a red padlock  appears next to these equipments, you may not modify them. Generally, if you started with the correct Trunking Template, these should be filled in for you and you should not need to modify them. If you need to modify them, first clone the equipment, then replace the equipment in the Trunking System with the clone, which you may modify.

When all data items have been entered, click the Compliance Checks button  on the tool bar and run the NTIA Mandatory compliance checks against your record. See Checking a Certification for Compliance. Fix any FAILURES found.

Finally, export the record and send the export file to NTIA.

Expanding an Existing Trunking System

Section 10.8.2 of the NTIA Manual requires Federal Agencies to report certain data items to NTIA when they expand an existing Trunking System or add additional channels. Section 10.8.2 asks for data items as the differences from the existing Trunking System. For example you are told to report the "Number of Additional Channels".

EL-CID uses a different approach. Instead of telling NTIA what is different in the expanded Trunking System, you simply modify the existing Trunking System record, changing whatever is different, and then send the modified record to NTIA. NTIA can tell what is changed by comparing the modified record with the original.

To expand an existing Trunking System, proceed as follows.

1. If the existing Trunking System is Approved (you may not modify it), clone it.
2. Make modifications to the record as required by Section 10.8.2 in the Line Diagram and Tree View.
3. Run Compliance Checks.
4. Export the record and send the export file to NTIA.

How Do I?

Print the Query Results Grid

Q: How can I print the grid in the **Query Results** screen?

A: See Printing the Query Results Grid.

Create a New Equipment Record?

Q: While working on a Certification in the Tree View, I can create a new Transmitter, Receiver, or Antenna record by right-clicking on one of the [Station] nodes. However, this modifies the Certification. Is there a way to create new equipment records without modifying a Certification?

A: Click **File** on the main menu, click **New**, then click **Transmitter**, **Receiver**, or **Antenna**. If you click Antenna, you must also click **Aperture**, **Linear**, or **Phased Array**. The Tree View screen appears with the new equipment record displayed. Topic Creating and Editing Equipments has more information concerning creating and manipulating equipment records in EL-CID.

Print an Individual Equipment?

Q: How can I print an individual equipment without printing the Certification?

A: You can print an individual equipment in Full Record format. See Printing Individual Equipments. EL-CID does not currently have a capability to print an individual equipment in 1494 format, however, you can print a Certification that uses the equipment and check just the appropriate 1494 pages in the **Print Options** screen. See Printing Individual Certifications for more information.

Export Query Results to a Spreadsheet?

Q: How can I transfer the Query Results grid to a spreadsheet?

A: See Exporting the Query Results Grid and Grid Options.

Find Certifications with No Transmitters?

Q: I want to find all the Certification records in my database that do not have any transmitters. How do I do that?

A: In the **Build Query** screen (see Creating or Editing a Query), choose **Certification** in the **Select** frame, and enter a condition that looks like this:

[Transmitter\Nomenclature] Not Exists

In a similar fashion, to select Certifications that do not have any receivers, enter a condition like this:

[Receiver\Nomenclature] Not Exists

Or to select Certifications that do not have any antennas, enter a condition like this

[Aperture\Nomenclature] Not Exists

You do not need to worry about whether you are selecting on Aperture, Linear, or Phased Array antennas.

To learn more about selecting for blanks and missing data, see Advanced Queries.

Find Transmitters Not Used In Any Certifications?

Q: I want to find "orphaned" equipments, for example transmitters not used in any Certification records in my database. How do I build a query to do that?

A: In the **Build Query** screen (see Creating or Editing a Query), choose **Transmitter** in the **Select** frame, and enter a condition that looks like this:

[General Information\System Name] Not Exists

To select receivers not used in any Certifications, enter the same condition, but choose **Receiver** in the **Select** frame.

To select antennas not used in any Certifications, enter the same condition, but choose **Antenna** in the **Select** frame.

Notice that these queries work because every Certification has a System Name and the queries you are building select for equipments used in Certifications where System Name does not exist.

To learn more about selecting for blanks and missing data, see Advanced Queries.

Find Records That Are Missing Data?

Q: I want to find all the Transmitters that do not have a Manufacturer specified. How can I do that?

A: In the Build Query screen (see Creating or Editing a Query), choose the **Transmitters** radio button in the **Select** frame and enter a condition like this

[Transmitter\Manufacturer] Missing (blank)

For more information on selecting for blanks and missing data, see Advanced Queries.

Make a List of All Certifications in My Database?

Q: How can I build a query to select all Certifications in the database?

A: In the **Build Query** screen (see Creating or Editing a Query), choose **Certifications** in the **Select** frame but do not enter any conditions. (If the **Select Data Item** screen appears, dismiss it by clicking the **Cancel** button.)

You can select for all Transmitters by choosing **Transmitter** in the **Select** frame.

You can select for all Receivers by choosing **Receiver** in the **Select** frame.

You can select for all Antennas by choosing **Antenna** in the **Select** frame.

In summary, if there are no query conditions, the query selects all the records in the database of the chosen type.

Make a List of All Equipments in My Database?

Q: How can I build a query to select all equipments (transmitters, receivers, and antennas) in the database?

A: You cannot do that, but you can build a list of all transmitters, a separate list of all receivers, and a separate list of all antennas. See Make a List of All Certifications in My Database? for how to do this.

Delete an Equipment From the Database?

Q: When I remove an equipment that is part of a certification in the Tree View, the equipment is not completely deleted from my database. How can I actually completely delete an equipment record?

A: Build a query to select the equipment record. See Creating or Editing a Query. Run the query. See Running a Query. Highlight the record in the **Query Results** grid, right-click the highlighted record and click **Delete**. If the equipment is used in any certification records, you will be warned before the equipment is deleted.

Note: You cannot delete an equipment if it is used in any Approved Certifications and you are not a Certifier.

Rename an Existing Equipment?

Q: How do I change the Nomenclature of an existing equipment?

A: Build a query to select the record. See Creating or Editing a Query. Run the query. See Running a Query. Highlight the record in the **Query Results** grid. If the equipment is Unapproved, right-click the highlighted record and click **Edit in Tree View**. Enter the new nomenclature in the Tree View screen (node **[Transmitter]**). If the equipment is Approved, and you are not a Certifier, you are not allowed to modify it. However, you can Clone it and modify the clone.

Keep in mind that when you rename an equipment, it is renamed for all Certifications that use it. If you want to rename an equipment without affecting existing Certifications, use the **Clone** option instead. Also see Modify An Equipment Without Affecting Any Certifications?.

Modify an Equipment Without Knowing Which Certifications It Is Used In?

Q: I want to modify an equipment for which I know the nomenclature, but I don't know which Certifications it is used in. Is there an easy way to edit just the equipment in the Tree View without first opening a Certification?

A: You can open equipments in the Tree View from the **Query Results** screen. If there are only a few equipments in your database, the simplest way to proceed is:

1. Start a new query by clicking **File** on the main menu, then click **New**, then **Query**.
2. Dismiss the **Select Data Item** screen that appears by clicking the **Cancel** button.
3. Choose the equipment type desired in the **Select** frame.
4. Run the query by clicking the **Run Query** button.
5. Highlight the desired equipment in the **Query Results** screen.
6. Right-click on the highlighted equipment and click **Edit in Tree View**.

Keep in mind that when you modify an equipment, it is modified for all Certifications that use the equipment. If you want to modify an equipment without affecting existing Certifications, click the **Clone** option in Step 6 above instead. See Modify An Equipment Without Affecting Any Certifications? for more information.

To find out which Certifications use an equipment, see Querying Using Certifications.

Modify An Equipment Without Affecting Any Certifications?

Q: I want to modify an equipment, but I don't want to affect any of the Certifications that use the equipment. Is there a way to do that?

A: When you open a Certification in the **Tree View** and modify any of the equipments, all Certifications that use the equipment are affected. To modify an equipment without affecting any Certifications, you must clone it. If the equipment is part of a Certification you are working on, Replace the equipment with the clone.

To find out which Certifications use an equipment, see Querying Using Certifications.

Change the Agency of a Certification?

Q: The Tree View screen will not permit me to change the Agency Code of a Certification record. How can I do that?

A: When you clone a Certification record, the Agency Code in the cloned record is automatically changed to your logged-in Agency. Therefore, to change the Agency Code of a Certification, exit EL-CID, restart EL-CID, log in under the new Agency, then clone the Certification.

Change the Stage of a Certification?

Q: How do I change the Stage of a Certification?

A: If the Certification is Unapproved, simply open the Certification in the Tree View and modify it (click the **[General Information]** node in the tree). If the Certification is Approved and you are not a Certifier, clone it. You may modify the clone.

Send a Certification to NTIA?

Q: OK, I've created a new Certification record. How do I send it to NTIA?

A: If you haven't already done so, run Compliance Checks against your record and fix any FAILUREs. Then export the Certification and e-mail the export file (.cid file) to NTIA.

The e-mail address for Certification Applications is

spsreview@ntia.doc.gov

Note: If the record is classified, you should handle the export file using approved security procedures.

Find a Data Item in the Tree View

Q: There are a lot of data items collected in the Tree View in EL-CID. How can I determine where in the tree an item corresponding to a block on the 1494 form is? For example, where in the tree is Block 11 (Spread Spectrum) on the 1494 Transmitter Equipment page?

A: See Data Item Finder.

Copy and Paste Tree Nodes

Q: I'm entering a transmitter that has a lot of frequencies and emissions, each with similar modulation characteristics. It is painful to have to enter the same modulation data over and over. Is there some way I can save typing?

A: See Copy and Paste Tree Nodes in the Tree View.

Manufacturer Functions

Manufacturer Interface

EL-CID is designed to permit equipment manufacturers to create Transmitter, Receiver, and Antenna records independently of a Certification Application. As a manufacturer, you may be asked by your Government sponsor (your customer) to create these records. This topic explains how to use EL-CID in this way.

Note: If your sponsor asked you to create a Certification Application, then you will not use the manufacturer interface. Instead, you will be a normal EL-CID user. Start with Starting the EL-CID Program.

The manufacturer interface in EL-CID is essentially the same as for normal EL-CID users, except that you manipulate equipment records -- Transmitters, Receivers, and Antennas -- instead of Certification records. As a manufacturer, you will have all the same software options available to you that a normal EL-CID user has.

Tip: In many places in the program, defaults are chosen assuming that you want to manipulate Certification records. As a manufacturer, you will need to choose other options. For example, the Query Builder screen defaults to query on Certifications. Choose an equipment record type (Transmitter, Receiver, or Antenna) in the **Select Record** box instead.

How Equipments are used in Certifications

Although you will not be creating Certification Applications, it is helpful to understand how your sponsor will use the records you create when they create a Certification Application. The topic Overview of the Software contains important information you should read before you begin creating equipment records. Also see Creating and Editing Equipments for information about how the frequencies, emissions, and powers you enter for transmitters affect how your sponsor can certify the equipment.

Using a Dummy Certification Record

As a manufacturer, you are probably not required to create a Certification Application record that will eventually be sent to NTIA. Nevertheless, it can be helpful to create a dummy Certification Application to help you build your equipment records. Using this technique offers the following advantages:

- You can see how your equipments will fit into a Certification Application.
- You can see how the frequencies, emissions, and powers you enter for your equipment will feed into the Selected Modes your sponsor will request for certification. In particular, you will be able to see which frequencies meet the NTIA frequency allocation tables -- the so-called "In-band" frequencies, versus those that are "out-of-band".
- If the equipment information you provide is classified or has restricted distribution, you can specify additional classification, downgrading, and distribution markings for EL-CID outputs.
- You can run EL-CID Compliance Checks to see how your equipment will fare against the standards and requirements set by NTIA.
- You can perform "what if" analysis to see how your equipment will fare when used in systems other than your sponsor's intended use. Are there other markets for your equipment that you are considering?

Because of these advantages, we recommend that you use this technique. If you decide to create a dummy Certification Application, you will use EL-CID like any normal user, except that you will not send the dummy Certification record you create to your sponsor. Instead, you will export the equipment records

you created and send those to your sponsor.

In order to build the dummy Certification record, you need to have some idea of how your sponsor intends to use your equipment. Fixed or mobile? Space? Airborne, Sea, or Land? Radar? War Emergency? Does the sponsor have particular Radio Service or Station Classes in mind?

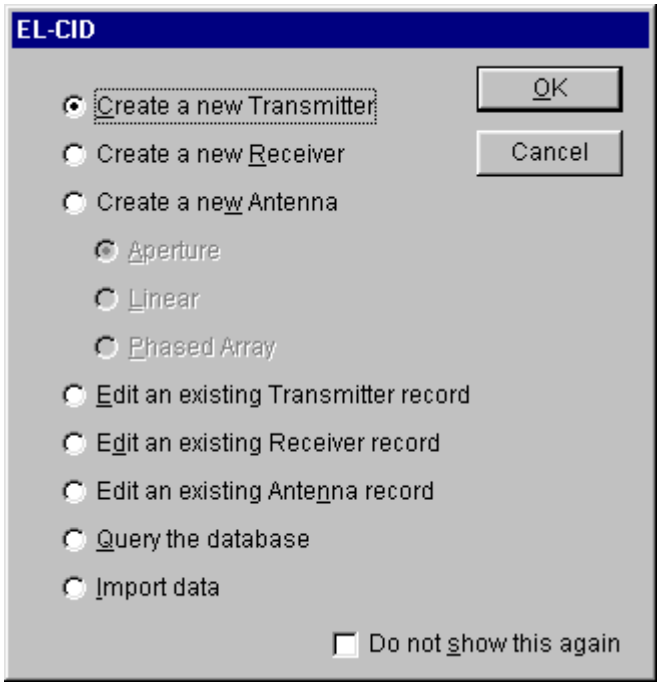
To use this technique, start with topic Starting the EL-CID Program. When you log in, choose your sponsor's Agency. When you've completed creating your equipment records, see below for how to export them and send them to your sponsor.

Starting EL-CID and Logging In as a Manufacturer

As a manufacturer, you start EL-CID the same way as a normal EL-CID user, except that you will log in with the Agency name **Any Manufacturer**. See Starting the EL-CID Program for details.

Startup Wizard

Once you've logged in, the manufacturer's version of the Startup Wizard screen appears.



Select what you want to do by clicking on one of the radio buttons, then click **OK**. Click **Cancel** if you want to go directly into the EL-CID program without the aid of the Startup Wizard.

Click **Cancel** if you want to go directly into the EL-CID program without the aid of the Startup Wizard.

Check the **Do not show this again** check box if you don't want to use the Startup Wizard in the future.

Once the EL-CID program has begun, you can perform the following activities.

- Set your program Preferences.
- Create a new equipment record.
- View or edit an existing equipment record in the **Tree View**.
- Perform a query against the database.
- Print an Equipment record.
- Import records into the database.
- Export records from the database.
- Compare any two equipment records.
- Delete equipment records from the database.
- Check an equipment for compliance with NTIA (and other) standards.

Note: You cannot run more than one version of the EL-CID program at one time.

Checking an Equipment for Compliance

You can run checks against an equipment record to determine if it meets NTIA and other standards. The procedure for doing this is the same as checking a Certification record, except you perform the checks against a single equipment record -- Transmitter, Receiver, or Antenna. See Checking a Certification for Compliance for more information.

There are fewer equipment Compliance Checks than there are for Certifications. This is largely because equipment Compliance Checks cannot know the certification context in which they will be used. For example, given only a Transmitter record, one cannot tell which Radio Services or Station Classes the transmitter will be used in. Many of the equipment Compliance Check messages are of the form: "WARNING: If this equipment were used in a certain kind of Certification, then a FAILURE would be reported."

If you created a dummy Certification record to contain your equipments, it is better to run the Compliance Checks against the dummy Certification record.

Exporting Equipment Records and Sending to NTIA

Because you created equipment records independent of any Certification records, you must separately export each type of record you created -- Transmitters, Receivers, and Antennas. See Exporting Data. If you created a dummy Certification record, you can either export the dummy Certification, which will also export the contained equipments in the dummy record, or export each of the equipment record types separately.

Send each of the export files (cid files) you created to your sponsor.

Note: If the record(s) you exported is classified, you should handle the export file using approved security procedures.

Review Engineer Functions

Review Engineer Functions Overview

Note: Only users at NTIA have Review Engineer privilege, therefore this topic only applies to NTIA.

If you have access to EL-CID as a Review Engineer, then you have additional capabilities within the program when you login as a Review Engineer:

- ✍ You may create a draft approved Certification by filling out the **Operating Characteristics and Recommendations** screen as described in Reviewing Certification Applications. However, you may not approve Certifications.
- ✍ You may change the Agency Code of any Certification record in the Tree View. This permits you to create Certification Applications for another agency as a way to show them how it is done.
- ✍ You may create new Policies and Recommendations in the Link Information screen and in the Operating Characteristics and Recommendations screen. If you create new Policies or Recommendations, you should send them to a Certifier for distribution to all users.

Topic Record Access Rights gives a summary of operations allowed in EL-CID by type of user (Certifier, Review Engineer, or ordinary user).

Note: Take care not to inadvertently modify a record you didn't intend to. Doing so will create a new version of the record and could lead to confusion when distributed to other users. To avoid doing this, never log into EL-CID as a Review Engineer unless you intend to actually perform Review Engineer functions.

The instructions in this chapter assume that you are proficient at operating the EL-CID software. If not, the first thing you should do is learn how to operate EL-CID as an ordinary user.

When you receive a Certification Application for review, you will follow the procedures in Reviewing Certification Applications to check the record for completeness and accuracy and build a draft approved Certification. When the record is ready for approval, you will export and send the record to a Certifier for final approval and distribution to all users.

Reviewing Certification Applications

Note: Only users at NTIA have Review Engineer privilege, therefore this topic only applies to NTIA.

When users create new Certification records, or clone an Approved Certification in order to modify it, they automatically create Unapproved Certification records, which we call Certification Applications. When they send Certification Application records to NTIA, a Certifier approves them, provided that the record meets NTIA and other standards. This topic describes the recommended procedures for reviewing Certification records prior to final approval.

You will normally import Certification Applications when users send them to you. To find the most recently imported Certifications, see Querying Imported Records.

Most of the time, if errors are found at any step of the approval process, you will send the record back to the user for modification, but for minor corrections, you may wish to make the modifications yourself.

The following are the recommended review steps for NTIA. (Other agencies with Review Engineer privilege may use different procedures.) The review process consists of five steps.

1. Examine the record for flaws and completeness.
2. Run Compliance Checks against the record.
3. Fill out the Operating Characteristics and Recommendations screen.
4. If required, create an engineering analysis document and attach it to the record.
5. When the record is ready for approval, send it to a Certifier.

Step 1: Examine the record for flaws and completeness

Note: This step can also be performed by a Certifier.

In this step, you are examining the record for overall completeness and obvious flaws that wouldn't be caught by the automated Compliance Checks. Open the record in the Tree View and Line Diagram View screens. Examine the Link Information for each link. The questions you should be asking yourself are:

- Does this record duplicate another? See Resolve Conflicts Over Certification Records.
- Did the creator re-use existing equipments or did he or she create unnecessary duplicates of existing equipments? See Resolve Conflicts Over Equipments.
- Did the creator re-use existing Location records, or did he or she create unnecessary duplicates of existing Locations? See Resolve Conflicts Over Location Records.
- Is the Agency Code, Coordination ID, and Stage of the Certification correct?
- Would you have given the record a different System Name?
- Is the diagram and Link Information constructed properly? For example, is a backwards link specified where appropriate? Are the Station icon types correct? Would it have been simpler and just as accurate if Generic stations had been used?

Step 2: Run Compliance Checks against the record.

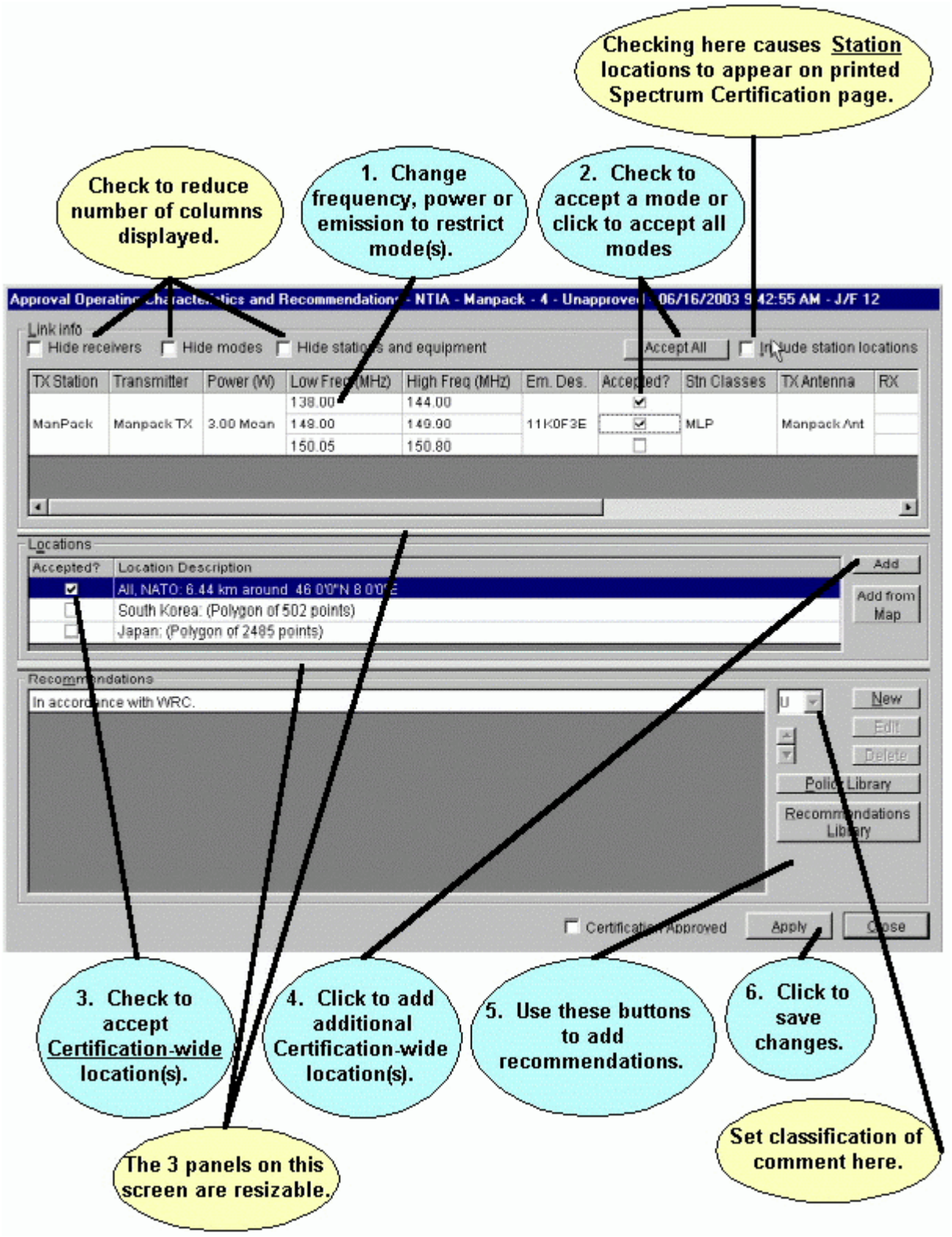
Note: This step can also be performed by a Certifier.

Run compliance against the Certification Application. If there are any FAILURES with which you concur, send the record back to the user for modification.

Step 3: Fill out the Operating Characteristics and Recommendations screen.

Note: This step can also be performed by a Certifier.

Open the Certification in the Tree View. Expand the **[Certification of Spectrum Support]** node and click once on the **[Operating Characteristics and Recommendations]** node. The **Approval Operating Characteristics and Recommendations** screen appears.



This screen displays information in three re-sizeable panels:

- The **Link Info** panel displays all the Selected Modes the user chose on the Link Information screens, plus any Accepted Modes already part of the Certification. You indicate which of the modes you want to accept for approval by checking their corresponding **Accepted?** check boxes. If the user specified locations for any Stations, those locations appear in the **Stn Location** column (scroll to right to view this column) corresponding to the links to or from that Station. If you check the **Include station locations** check box, these locations become part of the approved modes and are printed on the 1494 Certification of Spectrum Support page. If not checked, station locations are not included in the Accepted Modes.

  Note: You can restrict a mode to a narrower frequency range, lower power, or different Emission Designator. Click on the cell in the grid and type in a new value. You are not permitted to increase a frequency range or power.

- The **Locations** panel displays all the locations the user specified in the Tree View screen under the **[Location Information]** node. These locations, unlike the station locations, apply to the entire Certification as a whole. Check the check box in the **Accepted?** column next to each location you want to approve. You can specify additional locations by clicking the **Add** button or by clicking the **Add from Map** button.

- The **Recommendations** panel is where you specify comments for the approved Certification. You may pick from a library of existing **Policies** or **Recommendations** by clicking the appropriate buttons, or you may create a new recommendation by clicking **New**. You can modify any recommendation by highlighting it and clicking **Edit**.

  Note: Modifying a Policy or Recommendation by clicking **Edit** on this screen does not modify the Policy or Recommendation for any other records.

When you click the **Policy Library** or **Recommendations Library** buttons, you will have the opportunity to add new Policies or Recommendations to the database, which will then be available for use in other Certification records. If you do this, you should export them and send them to a Certifier for distribution to all users.

Click **Apply** to save all the information on this screen, or click **Close** without clicking Apply to abandon the changes.

Note: If you fill out this screen and later the Transmitter is replaced, or the frequency, power or Emission Designator is changed, the Accepted Modes are not altered. When you redisplay this screen, the previously checked Accepted Modes will be listed plus any new Selected Modes that might have been created on the Link Information screen(s). To get rid of these "old" Accepted Modes, uncheck them and click **Apply**.

Step 4: Prepare an engineering analysis document and attach to the Certification.

Note: This step can also be performed by a Certifier.

If required, prepare an analysis of the Certification Application in a separate document file. (Microsoft Word .doc file, for example.) When completed, attach the file to the Certification in the Tree View by right-clicking on the **[Attachments]** node and choosing **Add Attachment** in the popup menu that appears.

Step 5. Send to a Certifier

When the Certification Application record is ready for final approval, export it and send it to a Certifier. The Certifier will complete the steps enumerated in topic Approve Certification Applications.

Certifier Functions

Certifier Functions Overview

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

If you have access to EL-CID as a Certifier, then you have additional capabilities within the program when you login as a Certifier:

- You may modify or delete any record, Approved or not.
- You may modify almost every data item of records in the Tree View. For example, you may change the **Agency** of any Certification in the **[General Information]** node, which non-Certifiers may not change.
- You may approve any record, i.e., change its **Approval Status** from Unapproved to Approve. You may also unapprove records. The record types you can approve are Certifications, Transmitters, Receivers, Antennas, Locations, and Compliance Checks.
- You may change the **Pre-defined Trunking System** flag in the **[General Information]** node of any Certification record in the Tree View, thereby making the record a Trunking Template or not.
- When exporting, you may set the Purge/Replace flag. When users import such a file, the program prompts them to purge all existing records of that type from their database before importing all the records in the file. See Importing Data for more information. This permits you to distribute mass updates of the database to all users.
- You may query on Agency records in the Query Builder. You may delete Agency records in the Query Results screen. You may create new Agency records when starting EL-CID.
- You may certify Certification applications, i.e., you may modify data in the **[Certification of Spectrum Support]** node sub-tree on the Tree View screen and on the Operating Characteristics and Recommendations screen.
- You may add, delete, and modify Policies and Recommendations from the Link Information screen or from the Operating Characteristics and Recommendations screen, or from the Query Results screen.
- You may change **Manufacturer Code** when editing Manufacturer records in the Tree View. (When users create new Manufacturer records, the code is set to 'XXX'. Assuming the new Manufacturer record is valid, you assign a code to the manufacturer and distribute the new record to all users.)
- You may replace equipments and Locations in any Certification record, Approved or not.

Topic Record Access Rights gives a summary of operations allowed in EL-CID by type of user (Certifier, Review Engineer, or ordinary user).

Note: Take care not to inadvertently modify a record you didn't intend to. Doing so will create a new version of the record and could lead to confusion when distributed to other users. To avoid doing this, never log into EL-CID as a Certifier unless you intend to actually perform Certifier functions.

Along with these privileges comes additional responsibilities. The following tasks are normally performed by designated personnel with Certifier privilege, but may be performed by any Certifier. The links in the following list go to topics that describe the recommended procedures for carrying out each of the tasks. The tasks are listed roughly in the order they should be performed.

- (Optional) Maintain a history of all Certification Applications sent to NTIA.
- Coordinate with users to resolve conflicts over versions of equipment records with the same Nomenclature.
- Coordinate with users to resolve conflicts over versions of Location records with the same State/Country and City.
- Coordinate with users to resolve conflicts over versions of Certification records.
- Coordinate with Recommending and Approving Authorities to approve Certification Applications.
- Create new Agency records and distribute to users via Purge/Replace export.
- Assign codes to new Manufacturer records and distribute to users via Purge/Replace export.
- Maintain Policy and Recommendation records and distribute to users via Purge/Replace export.
- Maintain and approve Compliance Check records and distribute to users.
- Maintain the master copy of the EL-CID database and ensure that a reliable backup of the EL-CID master database is maintained.
- Maintain a history of all changes to Approved Certification records.
- Periodically distribute newly-approved Certification records to all appropriate users.
- Maintain Trunking Template records and distribute to users.

Getting Prepared

The instructions in this chapter assume that you are proficient at operating the EL-CID software. If not, the first thing you should do is learn how to operate EL-CID as a non-Certifier.

Make sure you understand everything in About Record IDs, Approval Status, Timestamps, and Versions.

Here's a little quiz to see if you're ready, with links to more information.

1. Do you know what the colored padlock icons ( ,  ,  , and ) mean in the Tree View? Do you understand what happens to these padlock icons when a Certification is approved, especially for equipment and Location records? See About Record IDs, Approval Status, Timestamps, and Versions.
2. True or False: In the Tree View, it is possible to have a **[Certification]** node with a green padlock  and a **[Transmitter]** node with a red padlock  further down in the same tree. If True, how does this come about and what should a user who is not a Certifier do if they need to modify the Transmitter? Why doesn't the program simply let the user modify the Transmitter with the red padlock?
3. True or False: Deleting a Location record from the Query Results screen has no effect on any other records in the database.
4. True or False: When a user clones a Certification record, the **Agency Code** in the clone changes to the user's logged-in Agency.
5. True or False: Non-certifiers may not change the **Agency Code** of a Certification.
6. Do you understand the difference between **Selected Modes** and **Accepted Modes**? Do you understand what happens to the Link Information and **Selected Modes** in a Certification record when an equipment is replaced in that Certification? Do you understand what happens to the **Accepted Modes** in the Operating Characteristics and Recommendations screen when doing this?
7. True or False: Users who are not Certifiers cannot delete Approved Certification records from their database.
8. Do you understand the difference between a Trunking Template record and a Trunking System record? How are new Trunking Template records created?
9. What is the essential difference between a History install of the EL-CID software and a normal install? In other words, what don't you do in the History version that makes it History?

Answers: The answers to the True or False questions are: 2) True, 3) False, 4) True, 5) True, 7) False.

Getting Organized

If you will be responsible for maintaining history records, see Keeping a History of All Records before beginning to enter data into EL-CID.

Most of your tasks involve distributing data to EL-CID users as export files. Therefore, you should maintain an accurate and up-to-date mail distribution list for all EL-CID users. It is best to maintain this with software on the same workstation as EL-CID. For example, you can use Microsoft Outlook to do this.

Many of the tasks involve distributing data that has been added or modified since the last time you distributed the data. Therefore, it is a good idea to maintain a log of the data you distribute and when. This permits you to perform a query on those records that have been modified or added since the last time you distributed the data. For example, the following query selects Certification records that have been modified or imported since 15 Jan 2002

[General Information\Date/Time Last Modified] > 2002-01-15 01:00:00-05 local
========== OR ==========
[General Information\Date/Time Imported] > 2002-01-15 01:00:00-05 local

Maintain the History Database

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

This topic describes the recommended procedures for maintaining the EL-CID History database.

The History database differs from the master database in that you never delete older versions of records.

See Keeping a History of All Records for the basic procedures for maintaining the History database.

The frequency by which you update the History database depends upon the kinds of records you want to maintain a history of:

- If you are keeping a history of all records sent to NTIA, import into the History database every record sent to you (as well as importing them into the master database).
- If you are only keeping a history of changes to Approved Certifications, each time you modify an Approved Certification in the master database, export it and import it into the History database.

You must always export from the master database and import into the History database in the following cases:

- Any changes to Agency records. Do not delete old Agencies from the History database.

You can also optionally export from the master database and import into the History database in the following cases:

- Changes to Manufacturer records.
- Changes to Policies or Recommendations.

Regular backups are essential. Note that you must make backups of the following record types, as well as all Certifications:

Locations
Manufacturers
Compliance Checks
Agencies
Policies
Recommendations

Resolve Conflicts Over Equipments

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

Conflicts over equipment records arise because two or more users have submitted equipment records covering the same equipment. By the "same equipment", we generally mean that both records have the same Nomenclature, but not necessarily. Conflicts arise in the following ways:

- An already-Approved equipment record is in the database, but a user needed to modify it in order to complete a new Certification Application. Perhaps the original record was incomplete or inaccurate. Perhaps it did not list all the frequencies or modes the equipment supports. Perhaps the equipment can operate in several different bands in different modes, but whoever created the original record entered the frequencies as a single band. Perhaps the user had to change the classification of the equipment for use in his Certification.
- Two users have submitted records for the same brand new piece of equipment.
- The manufacturer has made a modification to the equipment, but for whatever reason, decided not to change the Nomenclature.

The EL-CID software is designed to accommodate multiple versions of equipment records. Therefore, you don't have to do anything. See About Record IDs, Approval Status, Timestamps, and Versions. However, in the interest of avoiding confusion, it is a good idea to try to get users to resolve their differences and consolidate the data so that only one version of the equipment record remains in the database. Essentially, this means that all Certifications that use the equipment must be changed to reference one version, and the other version should be deleted from the database.

Note: The **Delete Old Records** option will not delete equipment and Location records if they are used in any Certification records in the database. This is why it is not essential to resolve conflicts.

Identifying Equipment Conflicts

Equipment conflicts show up in the database as multiple versions of the same equipment record, even after you have run the **Delete Old Records** option on the **Maintenance** menu.

Whenever you receive a Certification Application, open the Certification in the Tree View. If it contains Unapproved  equipments, you should check for equipment conflicts as follows:

1. Click the Unapproved equipment once to select it.
2. Right-click on the equipment and click **Show Similar Versions** in the popup menu that appears.
3. If more than one equipment is displayed in the **Query Results** screen, there may be a conflict. You can determine which Certifications use an equipment by highlighting any one equipment, right-click on the equipment and choose **Show Using Certifications** in the popup menu that appears.
4. Highlight any two of the similar equipments in the **Query Results** screen. Right-click on any of the highlighted records and choose **Compare** in the popup menu that appears.
5. If the comparison shows no differences except that one of the records is Approved, the user should have chosen the existing Approved equipment record when preparing his Certification Application. Send the Certification back to the user and advise him to replace his equipment with the existing Approved one in the database.
6. If there are significant differences and the older record is Approved, it means that the user had to modify the equipment record in order to complete the Certification Application accurately. In this case, you need to ask yourself the following questions:
    1. Is the new record really the same equipment, or should it be assigned a different Nomenclature?

2. If it is the same equipment, can the existing Certification records that are using the older equipment be changed to use the new equipment without adversely affecting their Link Information and Selected Modes? To find out, right click on the older equipment record in the **Query Results** and click **Replace** in the popup menu that appears. In the **Pick Existing** screen that appears, select the newer version of the equipment record. In the **Equipment Replace** screen that appears, the impact of replacing the equipment will be enumerated. If the impact is minimal, you should click **Cancel** and then send all affected Certification records back to their originators along with the new equipment record. Ask the originators to resubmit their Certifications using the new equipment record. (You might also decide to do this yourself by clicking **Apply** on the **Equipment Replace** screen, but if you do this, be sure to send the updated Certification records back to all users for confirmation.) If the impact is significant, you should click **Cancel** and then send all affected Certification records back to the originators and ask them to work out their differences.

7. If the two versions are both Unapproved, it may be that two users have submitted records for the same brand new equipment. Send both Certification records back to both users and ask them to pick one version and resubmit their Certification Applications.

You can also identify equipment conflicts simply be querying for all equipments in the database. Since the equipments are listed in the **Query Results** screen alphabetically by Nomenclature, multiple versions of the same equipment will list the same Nomenclature more than once.

Resolve Conflicts Over Location Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

Conflicts over Location records arise because two or more users have submitted new Location records covering the same location. By "same location", we mean they have the same State/Country and City names, but not necessarily. Conflicts arise in the following ways:

- An already-Approved Location record is in the database, but a user needed to modify it in order to complete a new Certification Application. Perhaps the original record was incomplete or inaccurate. Perhaps it did not list all the coordinates of the location, or some of the coordinates were not accurate. Perhaps using the location in a Certification required the user to change the classification of the location.

The EL-CID software is designed to accommodate multiple versions of Location records. Therefore, you don't have to do anything. See About Record IDs, Approval Status, Timestamps, and Versions. However, in the interest of avoiding confusion, it is a good idea to try to get users to resolve their differences and consolidate the data so that only one version of the Location record remains in the database. Essentially, this means that all Certifications that use the Location must be changed to reference one version, and the other version should be deleted from the database.

Note: The **Delete Old Records** option will not delete equipment and Location records if they are used in any Certification records in the database. This is why it is not essential to resolve conflicts.

Identifying Location Record Conflicts

Location record conflicts show up in the database as multiple versions of the same State/Country and City, even after you have run the **Delete Old Records** option on the **Maintenance** menu.

Whenever you receive a Certification Application, open the Certification in the Tree View. If it contains Unapproved locations, you should check for Location record conflicts as follows:

1. Click the Unapproved Location once to select it.
2. Right-click on the Location and click **Show Similar Versions** in the popup menu that appears.
3. If more than one Location is displayed in the **Query Results** screen, there may be a conflict. You can determine which Certifications use a Location by highlighting any one Location, right-click on the Location and choose **Show Using Certifications** in the popup menu that appears.
4. Highlight any two of the similar Locations in the **Query Results** screen. Right-click on any of the highlighted records and choose **Compare** in the popup menu that appears.
5. If the comparison shows no differences except that one of the records is Approved, the user should have chosen the existing Approved Location record when preparing his Certification Application. Send the Certification back to the user and advise him to replace his Location with the existing Approved one in the database.
6. If there are significant differences and the older record is Approved, it means that the user had to modify the Location record in order to complete the Certification Application accurately. In this case, you need to ask yourself the following questions:
    1. Is the new record really the same Location, or should it be assigned a different State/Country or City?
    2. If it is the same Location, can the existing Certification records that are using the older Location be changed to use the new Location without adversely affecting them? You may have to consult with affected users to determine if this is the case.
7. If the two versions are both Unapproved, it may be that two users have submitted records for the same Location. Send both Certification records back to both users and ask them to pick one version and resubmit their Certification Applications.

You can also identify Location conflicts simply be querying for all Locations in the database. Since the Locations are listed in the **Query Results** screen alphabetically by State/Country and City, multiple versions of the same Location will list the same State/Country and City more than once.

Resolve Conflicts Over Certification Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

Conflicts over Certification records arise because two or more users have submitted Certification Applications for the same system. By "same system", we generally mean the same System Name, but not necessarily. Certification conflicts arise in the following ways:

- Two users submitted Certification Applications for the same system.
- Joe created a Certification and sent it to Mary. Mary made a few modifications and sent it to NTIA. In the meantime, Joe sent the original record to NTIA as well.
- Joe created a Certification and sent it to NTIA. Later, realizing that some changes were needed, he modified the record and resent it to NTIA.
- Two users cloned and modified the same Approved Certification, because they both thought they were supposed to make an update to it.
- Joe submitted a Certification Application, but you returned it to him for corrections. Now he has resubmitted the Certification Application.

Most of the time, you will resolve these conflicts by picking the most recent record and deleting the others, advising all affected users of your action. In some cases, however, it may be necessary to send both conflicting records back to both users, asking them to resolve their differences and resubmit.

Identifying Certification Record Conflicts

Conflicts can show up in the database in three varieties:

1. Certification record conflicts show up in the database as multiple versions of the same Certification record, having the same System Name and Agency Code. In this case the **Delete Old Records** option on the **Maintenance** menu will delete the older versions.
2. Two or more records can also show up in the database with the same System Name, but different Agency Codes. In this case, the **Show Similar Versions** option will not find the similar versions and the **Delete Old Records** option will not delete the duplicates.
3. Two or more records covering the same system can also show up in the database, but they have different System Names. These are much harder to identify, since the EL-CID software definitely thinks they are different records.

Whenever you receive a Certification Application, perform the following steps to identify possible conflicts:

1. Open the record in the Tree View.
2. Click on the **[Certification]** node to select it.
3. Right-click on the [Certification] node and choose **Show Similar Versions** in the popup menu that appears.
4. If two records are listed and the other record is Approved, it simply means that the user has submitted a modification to an existing Approved Certification and you should handle the new record like normal.
5. If more than one Unapproved record is listed in the **Query Results** screen, then a possible conflict exists. If you know that all the versions came from the same person, then delete the older versions. Otherwise, highlight two records, right-click on one of them and choose **Compare** in the popup menu that appears. If the records have very few differences, you should probably delete the older of the two. If the records differ significantly, you should probably send both records back to both users and ask them to resolve their differences and resubmit.

Varieties 2 and 3 listed above are harder to identify. To help find these conflicts, start a new query, and enter a condition to select only Unapproved records, like this

[General Information\Approval Status] == Unapproved

Examine the list for possible conflicts. If you suspect a conflict between two records, highlight both of them and proceed as in #5 above.

Approve Certification Applications

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

When users create new Certification records, or clone an Approved Certification in order to modify it, they automatically create Unapproved Certification records, which we call Certification Applications. When they send Certification Application records to NTIA, a Certifier approves them, provided that the record meets NTIA and other standards. This topic describes the recommended procedures for approving Certification records.

You will normally import Certification Applications when users send them to you. To find the most recently imported Certifications, see Querying Imported Records.

Most of the time, if errors are found at any step of the approval process, you will send the record back to the user for modification, but for minor corrections, you may wish to make the modifications yourself.

The following are the recommended approval steps for NTIA. (Other agencies with Certifier authority may use different procedures.) The approval process consists of eight steps.

1. Examine the record for flaws and completeness.
2. Run Compliance Checks against the record.
3. Fill out the Operating Characteristics and Recommendations screen.
4. Obtain signature of Recommending Authority . Fill out the Recommending Authority node in the Tree View.
5. Obtain signature of the Approval Authority.
6. Change the Approval Status to Approved.
7. Fill out the Approval Authority node in the Tree View.
8. Distribute to all users.

Step 1: Examine the record for flaws and completeness

Note: This step can also be performed by a Review Engineer.

In this step, you are examining the record for overall completeness and obvious flaws that wouldn't be caught by the automated Compliance Checks. Open the record in the Tree View and Line Diagram View screens. Examine the Link Information for each link. The questions you should be asking yourself are:

- Does this record duplicate another? See Resolve Conflicts Over Certification Records.
- Did the creator re-use existing equipments or did he or she create unnecessary duplicates of existing equipments? See Resolve Conflicts Over Equipments.
- Did the creator re-use existing Location records, or did he or she create unnecessary duplicates of existing Locations? See Resolve Conflicts Over Location Records.
- Is the Agency Code, Coordination ID, and Stage of the Certification correct?
- Would you have given the record a different System Name?
- Is the diagram and Link Information constructed properly? For example, is a backwards link specified where appropriate? Are the Station icon types correct? Would it have been simpler and just as accurate if Generic stations had been used?

Step 2: Run Compliance Checks against the record.

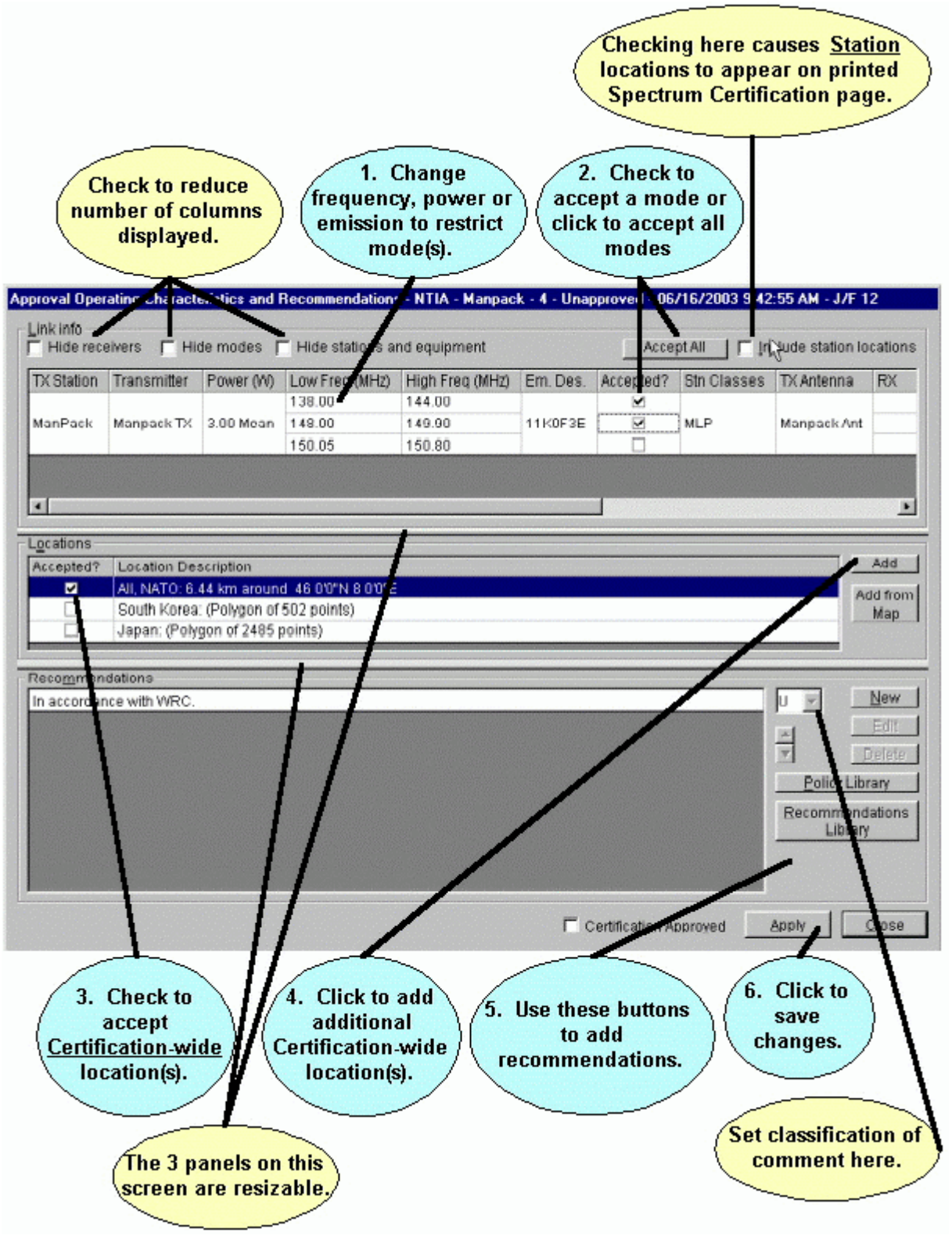
Note: This step can also be performed by a Review Engineer.

Run compliance against the Certification Application. If there are any FAILURES with which you concur, send the record back to the user for modification.

Step 3: Fill out the Operating Characteristics and Recommendations screen.

Note: This step can also be performed by a Review Engineer.

Open the Certification in the Tree View. Expand the **[Certification of Spectrum Support]** node and click once on the **[Operating Characteristics and Recommendations]** node. The **Approval Operating Characteristics and Recommendations** screen appears.


Checking here causes Station locations to appear on printed Spectrum Certification page.
Check to reduce number of columns displayed.
1. Change frequency, power or emission to restrict mode(s).
2. Check to accept a mode or click to accept all modes
Link info
Hide receivers
Hide modes
Hide stations and equipment
Accept All
Include station locations
TX Station
Transmitter
Power (W)
Low Freq (MHz)
High Freq (MHz)
Em. Des.
Accepted?
Stn Classes
TX Antenna
RX
ManPack
Manpack TX
3.00 Mean
138.00
144.00
148.00
149.90
11K0F3E
MLP
Manpack Ant
150.05
150.80
Locations
Accepted?
Location Description
All, NATO: 6.44 km around 46 0'0"N 8 0'0"E
South Korea: (Polygon of 502 points)
Japan: (Polygon of 2485 points)
Add
Add from Map
Recommendations
In accordance with WRC.
New
Edit
Delete
Police Library
Recommendations Library
Certification Approved
Apply
Close
3. Check to accept Certification-wide location(s).
4. Click to add additional Certification-wide location(s).
5. Use these buttons to add recommendations.
6. Click to save changes.
The 3 panels on this screen are resizable.
Set classification of comment here.

This screen displays information in three resizeable panels:

- The **Link Info** panel displays all the Selected Modes the user chose on the Link Information screens, plus any Accepted Modes already part of the Certification. You indicate which of the modes you want to accept for approval by checking their corresponding **Accepted?** check boxes. If the user specified locations for any Stations, those locations appear in the **Stn Location** column (scroll to right to view this column) corresponding to the links to or from that Station. If you check the **Include station locations** check box, these locations become part of the approved modes and are printed on the 1494 Certification of Spectrum Support page. If not checked, station locations are not included in the Accepted Modes.

  Note: You can restrict a mode to a narrower frequency range, lower power, or different Emission Designator. Click on the cell in the grid and type in a new value. You are not permitted to increase a frequency range or power.

- The **Locations** panel displays all the locations the user specified in the Tree View screen under the **[Location Information]** node. These locations, unlike the station locations, apply to the entire Certification as a whole. Check the check box in the **Accepted?** column next to each location you want to approve. You can specify additional locations by clicking the **Add** button or by clicking the **Add from Map** button.

- The **Recommendations** panel is where you specify comments for the approved Certification. You may pick from a library of existing **Policies** or **Recommendations** by clicking the appropriate buttons, or you may create a new recommendation by clicking **New**. You can modify any recommendation by highlighting it and clicking **Edit**.

  Note: Modifying a Policy or Recommendation by clicking **Edit** on this screen does not modify the Policy or Recommendation for any other records.

Click **Apply** to save all the information on this screen, or click **Close** without clicking Apply to abandon the changes.

Note: If you fill out this screen and later the Transmitter is replaced, or the frequency, power or Emission Designator is changed, the Accepted Modes are not altered. When you redisplay this screen, the previously checked Accepted Modes will be listed plus any new Selected Modes that might have been created on the Link Information screen(s). To get rid of these "old" Accepted Modes, uncheck them and click **Apply**.

Step 4: Obtain signature of Recommending Authority . Fill out the Recommending Authority node in the Tree View.

Note: You must be logged into EL-CID as a Certifier for this and the rest of the steps.

Print out the record's Certification of Spectrum Support page and give it to the Recommending Authority. The Recommending Authority may wish to add additional recommendations or comments, which you should perform as in Step 3, then repeat Step 4. When the Recommending Authority signs the page, open the Certification in the Tree View. Expand the **[Certification of Spectrum Support]** node and click once on the **[Recommending Authority]** node. Fill in the name, title, and date signed.

Step 5: Obtain signature of the Approval Authority.

Give the signed Certification of Spectrum Support page to the Approval Authority for signature and comment.

Step 6: Change the Approval Status to Approved.

When the Approval Authority signs the Certification of Spectrum Support, approve the record. You can do that on the **Approval Operating Characteristics and Recommendations** screen. You can also do it by opening the Certification in the Tree View. Click the **[General Information]** node and change data item **Approval Status** to Approved.

Step 7: Fill out the Approval Authority node in the Tree View.

Open the Certification in the Tree View. Expand the **[Certification of Spectrum Support]** node and click once on the **[Approval Authority]** node. Fill in the name, title, date signed, and any additional comments provided by the Approval Authority.

Important: Once this step has been completed, no more changes should ever be made to this version of the record. If changes are needed, a new Certification Application should be created by cloning the Approved Certification. The Certification Application must then go through the complete approval process all over again.

Step 8: Distribute to all users.

See Distribute Approved Certifications to All Users.

Manage and Distribute Agency Records

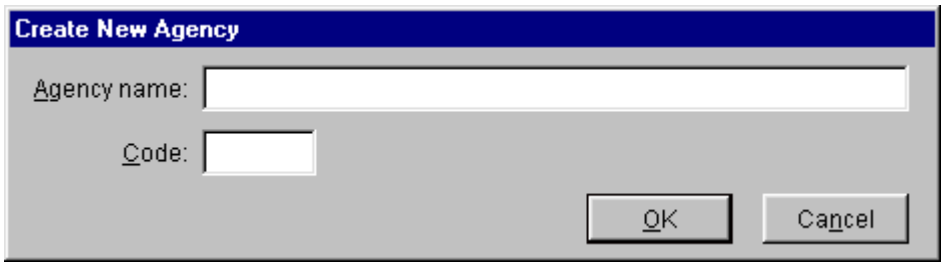
Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

This topic describes how to create new Agency records (new users) in EL-CID and to distribute them to all users. It also describes how to delete obsolete agencies or rename agencies that have changed their name.

Task Frequency	As needed whenever a new Agency starts using EL-CID, or an Agency changes its name.
Cautions and Caveats	✍ Do not delete an Agency if there are Certification records in the database named with that Agency's Code. ✍ Do not change an Agency Code of an existing Agency if there are Certification records in the database named with that Agency Code.
Certifier Login Required?	Yes
Export Type	Purge/Replace
Export Filename	All Agencies.cid
Export Description	All agencies as of <fill in current date>.
Import Instructions to Users	Attached is an EL-CID import file containing all Agencies for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. 3. When prompted whether to Purge/Replace on import, respond by clicking the Yes button. Special Note: If you've received the attachment because you are a new EL-CID user for which an Agency has not yet been entered in EL-CID, start EL-CID and choose any Agency. Follow the procedure above, then exit EL-CID. Restart EL-CID and this time, choose your Agency, which should appear in the dropdown list.

To create a new Agency for EL-CID:

1. If running EL-CID, exit.
2. Start EL-CID. At the **Login** screen, check the **Login as Certifier** check box and click the **Create Agency** button. The **Create New Agency** screen appears



3. Enter the full **Agency name** for the new agency and a unique **Code** for the agency (up to 4 characters). The code will appear in the name of all Certification records the user creates. Click **OK**.

4. Distribute all Agency records using the procedure below.

To delete an Agency:

1. Login as a Certifier.
2. Start a new query. Select **Agency** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Agency records in the database and list them in the Query Results screen.
3. Highlight the agency to be deleted. Right-click the Agency and click **Delete** in the popup menu that appears.
4. Distribute all Agency records using the procedure below.

Note: You should not delete an Agency unless there are no Certification records in the entire database with that agency's Agency Code. If the Agency has changed its name, rename it, but do not change the Agency Code, if possible. If the Agency Code must be changed, and there are Certification records with the old Agency Code, you should create a new Agency record instead.

To rename an Agency:

1. Login as a Certifier.
2. Start a new query. Select **Agency** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Agency records in the database and list them in the Query Results screen.
3. Highlight the Agency to be renamed. Right-click the Agency and click **Edit in Tree View** in the popup menu that appears.
4. Change the **Agency** or **Agency Code** as desired in the **Tree View** screen.
5. Distribute all Agency records using the procedure below.

Note: Do not change the Agency Code if there are Certification records named with the code. Create a new record instead.

Distribution Procedure

1. Login as a Certifier.
2. Start a new query. Select **Agency** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Agency records in the database and list them in the Query Results screen.
3. Highlight all the agency records in the Query Results screen. Right-click on any agency and choose **Export** in the popup menu that appears.
4. In the Export Agency screen, enter the file name and description listed at the top of this topic.
5. Check the **Purge and replace on import** check box
6. Click **OK** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

Manage and Distribute Manufacturer Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

From time-to-time, users will create new Manufacturer records as new equipment enters the database. When users send you Certification records, these new Manufacturer records are automatically added to your database with a Manufacturer Code of **XXX**. Periodically, you should check these records for validity, and if valid, assign a unique Manufacturer Code to the new manufacturer. Then distribute all Manufacturer records to all EL-CID users.

Task Frequency	As needed whenever Manufacturers appear in the database with a Manufacturer Code of XXX.
Cautions and Caveats	Deleting a Manufacturer from the database or changing a Manufacturer Name can cause Compliance Check WARNINGS in Certification records if any records reference them.
Certifier Login Required?	Yes
Export Type	Purge/Replace
Export Filename	All Manufacturers.cid
Export Description	All manufacturers as of <fill in current date>.
Import Instructions to Users	Attached is an EL-CID import file containing all Manufacturers for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. 3. When prompted whether to Purge/Replace on import, respond by clicking the Yes button.

To determine if there are any new Manufacturer records in the database with unassigned codes:

1. Start EL-CID and login as a Certifier.
2. Start a new query. Choose **Manufacturer** in the **Select** frame. Without entering any query conditions, click **Run Query**. A list of all the Manufacturer records will appear in the Query Results screen.
3. Click the header at the top of the **Code** column to sort all records by Manufacturer Code.
4. Scroll down through the list to locate any records with a code of **XXX**.

Examine the records to see if the new manufacturers are legitimate. In some cases, users will have duplicated existing Manufacturer records by entering a different spelling or entering the name in a different upper/lowercase form. If this is the case, you can locate the errant Certification records that reference these invalid manufacturers using a query like this

[Transmitter\Manufacturer Name] == An Invalid Manufacturer Name
========== OR ==========
[Receiver\Manufacturer Name] == An Invalid Manufacture Name
========== OR ==========
[Antenna\Manufacturer Name] == An Invalid Manufacture Name

You can either correct the Certification records yourself or send the records back to the creator for correction. In either case, delete the invalid Manufacturer records by right-clicking on them in the Query Results screen, and click **Delete** in the popup menu that appears. Then send the errant Certification

records back to the creators.

If a new Manufacturer is legitimate, right-click on the Manufacturer record in the Query Results screen and click **Edit in Tree View** in the popup menu that appears. Change the **Manufacturer Code** to a unique code in the **Tree View** screen and click **Close**.

Note: When users create new Manufacturer records, they receive a WARNING message whenever they run Compliance Checks against the Certification telling them to check the Manufacturer Name for duplicates and accuracy. When you change the code and send it back to the user, this warning message will no longer appear.

Distribution Procedure

1. Login as a Certifier.
2. Start a new query. Select **Manufacturer** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Manufacturer records in the database and list them in the Query Results screen.
3. Highlight all the Manufacturer records in the Query Results screen. Right-click on any manufacturer and choose **Export** in the popup menu that appears.
4. In the Export Manufacturer screen, enter the file name and description listed at the top of this topic.
5. Check the **Purge and replace on import** check box.
6. Click **OK** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

Manage and Distribute Policy and Recommendation Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

Only Certifiers or Review Engineers may create or modify Policies and Recommendations. Non-Certifiers may use Policies in the Link Information screen to justify Out-of-band modes. This topic describes how to create or modify Policies and Recommendations and distribute to all users.

Task Frequency	As needed whenever Policies or Recommendations are created or modified by Certifiers.
Cautions and Caveats	None
Certifier Login Required?	Yes
Export Type	Purge/Replace
Export Filename	All Policies.cid, All Recommendations.cid
Export Description	All Policies/Recommendations as of <fill in current date>.
Import Instructions to Users	Attached is an EL-CID import file containing all Policies/Recommendations for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. 3. When prompted whether to Purge/Replace on import, respond by clicking the Yes button.

As a Certifier or Review Engineer, you can create or modify Policies in two ways.

- ✍ On the Link Information screen, click the Policies button. The **Pick Existing Policy** screen will offer two additional buttons not available to non-Certifiers: **Add** and **Modify**.
- ✍ On the Operating Characteristics and Recommendations screen, click the **Policies Library** button. The **Pick Existing Policy** screen will offer two additional buttons not available to non-Certifiers: **Add** and **Modify**.

Note: To get to these screens, you must open any Certification record in the Tree View. To avoid modifying the Certification, click the **Cancel** button on the **Pick Existing** screen after you've created or modified the policy.

You can also modify (but not create) policies by performing a query on **Policy**. Right-click any Policy and click **Edit in Tree View** in the popup menu that appears.

As a Certifier, you can create or modify Recommendations by clicking the **Recommendations Library** button on the Operating Characteristics and Recommendations screen**.** The **Select Recommendation** screen will offer two additional buttons not available to non-Certifiers: **Add** and **Modify**.

You can also modify (but not create) recommendations by performing a query on **Recommendation**. Right-click any Recommendation and click **Edit in Tree View** in the popup menu that appears.

Distribution Procedure

You distribute two files -- one for policies and one for recommendations.

1. Login as a Certifier.
2. Start a new query. Select **Policy** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Policy records in the database and list them in the Query Results screen.
3. Highlight all the Policy records in the Query Results screen. Right-click on any Policy and choose **Export** in the popup menu that appears.
4. In the Export Policy screen, enter the file name and description listed at the top of this topic.
5. Check the **Purge and replace on import** check box.
6. Click **Export** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.
8. Repeat Steps 1 through 7, except choose **Recommendation** at Step 2.

Manage and Distribute Compliance Check Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

All users may create new Compliance Checks. All users may also modify existing Unapproved Compliance Checks, thereby creating a new version. (See About Record IDs, Approval Status, Timestamps, and Versions.) From time-to-time, therefore, power users may send you new or updated Compliance Checks. It is your task to validate them. If you don't want users to be able to modify a Compliance Check, you should Approve it. You will then distribute Compliance Checks to all users.

Task Frequency	As needed whenever Compliance Checks are created or modified by users.
Cautions and Caveats	Approved Compliance Checks in the NTIA Mandatory category are mandatory when users run compliance. Only approve Compliance Checks in the NTIA Mandatory category if you want all users to always run them.
Certifier Login Required?	Yes
Export Type	Normal or Purge/Replace
Export Filename	YYYYMMDD_Compliance_Checks.cid All Compliance Checks.cid
Export Description	New or updated Compliance Checks since <fill in date of previous distribution>. All Compliance Checks as of <fill in current date>.
Import Instructions to Users	For a normal distribution: Attached is an EL-CID import file containing the latest Compliance Checks for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. After importing, you may wish to Delete Old Records from your database by clicking Maintenance on the main menu. For a Purge/Replace distribution: Attached is an EL-CID import file containing all Compliance Checks for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. 3. When prompted whether to Purge/Replace on import, respond by clicking the Yes button, but only if you have not created Compliance Checks of your own. If you have created any Compliance Checks of your own, you should click No.

To maintain Compliance Check records, see Advanced Compliance Checks.

Distribution Procedure

There are two ways to distribute Compliance Checks. If you've simply added some new Compliance Checks, or modified and/or approved existing Compliance Checks, you can distribute them as a normal export file. If you have deleted Compliance Checks, you should distribute them as a Purge/Replace export file. You can combine both procedures. For example, you could send out normal exports quarterly, and Purge/Replace exports annually.

To distribute as a normal export:

1. Login. You do not have to log in as a Certifier.
2. Start a new query. Choose **Compliance Check** in the **Select** frame. Enter a query condition to select the Compliance Checks that have been created or modified since the last distribution, like this

   [Compliance Check\Data/Time Last Modified] > 5/7/2002 5:50:11 PM UTC
3. Highlight all the Compliance Check records in the Query Results screen. Right-click on any Compliance Check and choose **Export** in the popup menu that appears.
4. In the Export Compliance Check screen, enter the file name and description listed at the top of this topic.
5. Do not check the **Purge and replace on import** check box (if visible).
6. Click **OK** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

To distribute as a Purge/Replace export:

1. Login as a Certifier.
2. Start a new query. Choose **Compliance Check** in the **Select** frame. Without entering any constraints, click the **Run Query** button. This will select all the Compliance Checks records in the database and list them in the Query Results screen.
3. Highlight all the Compliance Check records in the Query Results screen. Right-click on any Compliance Check and choose **Export** in the popup menu that appears.
4. In the Export Compliance Check screen, enter the file name and description listed at the top of this topic.
5. Check the **Purge and replace on import** check box
6. Click **OK** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

Manage and Distribute Trunking Template Records

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

Trunking Template records are employed when users create Trunking Systems. A Trunking Template record is a Certification record with the **Pre-defined Trunking System** data item set to Yes. Since non-Certifiers cannot change this data item, Certifiers are responsible for creating and distributing Trunking Template records to all users.

Task Frequency	As needed whenever new Trunking equipment systems are submitted for approval.
Cautions and Caveats	None
Certifier Login Required?	No
Export Type	Normal
Export Filename	All Trunking Templates.cid
Export Description	All Trunking Template records as of <fill in current date>.
Import Instructions to Users	Attached is an EL-CID import file containing all the latest Trunking Template records for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. After importing, you may wish to Delete Old Records from your database by clicking Maintenance on the main menu.

A Trunking Template record begins its life as a normal Certification Application. When the record is sent to NTIA, the user will indicate that the system is suitable as a Trunking Template, either via separate communication, or by comments in the System Description. Assuming the record is acceptable, it will be approved like any other Certification Application.

Before converting a record into a Trunking Template, consider the following:

- Will users need to modify the equipment (Transmitter, Receiver, and Antenna) data? Most of the time, no, but if you think they might, you should distribute the Trunking Template using Unapproved equipment records. To do that, make a clone of the Approved record. On the **Clone** screen, check the **Clone all equipments used in this Certification also** check box. Now change the System Name in the clone to something unique. In this way, the equipments will be Unapproved and therefore users may modify them.
- You might want to change the Agency Code of the Trunking Template to NTIA.
- Blank all data in the record that is specific to a single Trunking System. Remember that the Trunking Template is a template to be used in building many Trunking Systems.
- Unless you expect all the Trunking Systems built from the Trunking Template to operate in the same location(s), remove location records from the Certification.
- Make sure there is a **[Trunking Information]** node in the record. If not, you can add one in the Tree View. Click the **[Certification]** node. Click **Certification** on the main menu, then click **Add Trunking**.

To convert a Certification record into a Trunking Template, open the record in the Tree View. Click the **[General Information]** node. Change **Pre-defined Trunking System** to Yes.

Distribution Procedure

1. Login. You do not have to log in as a Certifier.
2. Start a new query. Choose **Certification** in the **Select** frame. Enter a query condition to select all the Trunking Templates in the database, like this and run the query.

   [General Information\Pre-defined Trunking System] == Yes
3. Highlight all the Certification records in the Query Results screen. Right-click on any Certification and choose **Export** in the popup menu that appears.
4. In the Export Certification screen, enter the file name and description listed at the top of this topic.
5. Do not check the **Purge and replace on import** check box (if visible).
6. Click **OK** to create the export file.
7. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

Maintain the Master EL-CID Database

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

This topic describes the recommended procedures for maintaining the master copy of the EL-CID Database. By "master copy", we mean the database of all the latest versions of Approved records.

- Maintain the History database prior to performing maintenance on the master database.
- Exercise due caution before deleting records from the database or modifying any record.
- Only keep the latest (most recent) versions of Approved records in the master database. If not already done, query older versions of records, export them, and import them into your History database. Then delete older versions of records from the master database.
- Since you are maintaining the master database, regular backups are essential. Note that you must make backups of the following record types, as well as all Certifications:

  Locations
  Manufacturers
  Compliance Checks
  Agencies
  Policies
  Recommendations

  Note: Since your duties probably also include managing and distributing all Agencies, Manufacturers, Policies and Recommendations, and Compliance Checks, you can use the distribution files you normally create for these as your backup files for them.

Distribute Approved Certifications to All Users

Note: Only users at NTIA have Certifier privilege, therefore this topic only applies to NTIA.

This topic describes how to distribute Approved Certification records to all EL-CID users. There are two techniques for doing this:

1. Incremental Distribution . Send out only those Certification Applications that have been approved since the last time you sent out a distribution, or
2. All Distribution. Send out all the Approved Certifications in the database.

Since the second technique requires more time to export and import, the Incremental Distribution is recommended. You can also combine both techniques, sending out Incremental Distributions as needed and sending out All Distributions semi-annually or annually.

Note: Neither of these distributions are Purge/Replace.

Task Frequency	Semi-annually or as needed whenever new Certification Applications are approved.
Cautions and Caveats	Do not distribute as Purge/Replace.
Certifier Login Required?	No
Export Type	Normal
Export Filename	YYYYMMDD Newly Approved Certifications.cid or All Approved Certifications.cid
Export Description	Certifications approved since <fill in date>. or All Approved Certifications as of <fill in current date>.
Import Instructions to Users	Incremental Distribution: Attached is an EL-CID import file containing Certification records approved since <fill in date>. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1. After completing the import, you may wish to purge older versions of records from your database. Do that by clicking Maintenance on the main menu and then click Delete Old Records. All Distribution: Attached is an EL-CID import file containing all Approved Certification records for use in EL-CID. Please use the following procedure to import the file into EL-CID: 1. Save the attachment to the Data subfolder in your EL-CID Program Folder (which defaults to C:\Program Files\EL-CID). 2. Double-click the attachment to automatically launch EL-CID and import the attachment. If your e-mail program is not set up to automatically launch attachments, start EL-CID. Click File on the main menu, then Import. Enter the file name you saved in Step 1.

	After completing the import, you may wish to purge older versions of records from your database. Do that by clicking Maintenance on the main menu and then click Delete Old Records.

Preparing for Distribution

Before performing the distribution, you should maintain the History database, then delete older versions of records from your database. You do this, of course, only in the master EL-CID database; not the History database.

Distribution Procedure

1. Start EL-CID. You do not need to login as a Certifier.
2. Start a new query. Select **Certification** in the **Select** frame.
3. If performing an Incremental Distribution, enter a query condition to select all records that are Approved and have been modified since the date of the last distribution, like this

   [General Information\Approval Status] == Approved
   [General Information\Date/Time Last Modified] > 2002-01-15 01:00:00-05 local

   If performing an All Distribution, enter a query for just Approved records, like this

   [General Information\Approval Status] == Approved
4. Click the **Run Query** button. This will list the records in the Query Results screen.
5. Highlight all the records by clicking the top-most Certification record once, scroll to the bottom of the list, and hold down the **Ctrl** key while clicking the bottom-most record.
6. Right-click any record and click **Export** in the popup menu that appears.
7. In the Export Certification screen, enter the file name and description listed at the top of this topic as appropriate.
8. Do not check the **Purge and replace on import** check box (if visible).
9. Click **OK** to create the export file.
10. Send the file to all EL-CID users with the suggested instructions given above at the top of this topic.

Note: It is also possible to distribute records in Purge/Replace mode. In this mode, when users import your export file, they will be prompted to delete all Certification records (Approved and Unapproved) from their database before importing your file. Because this will delete unapproved records and also records that users are working on, it is not recommended.

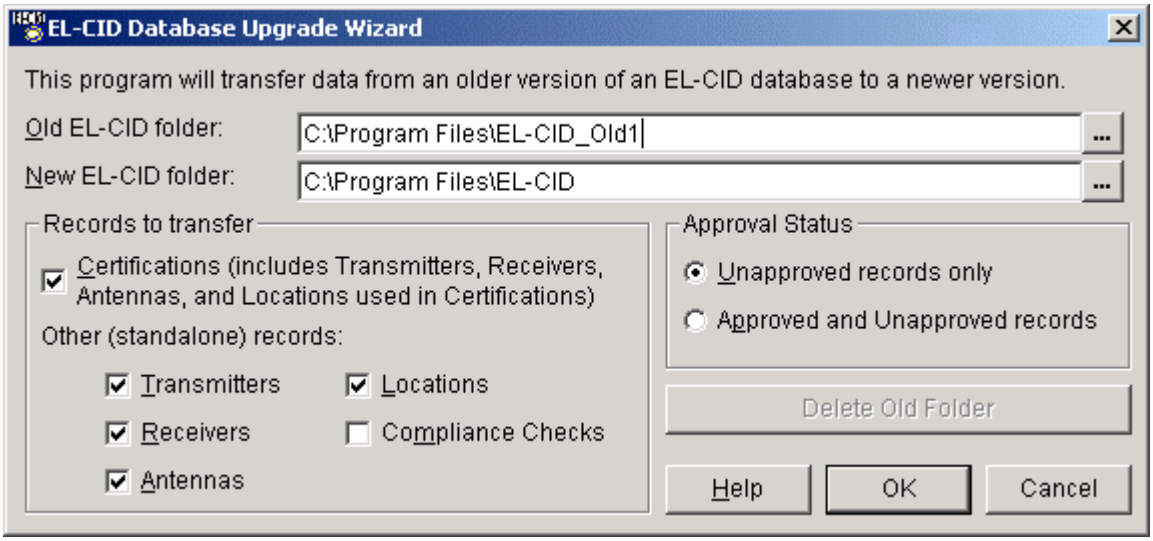
Database Upgrade Wizard

Database Upgrade Wizard

The Database Upgrade Wizard is a separate utility that transfers records from one version (usually an older version) of EL-CID to another version.

The Database Upgrade Wizard is automatically started at the end of the EL-CID installation program when it detects that you have a previous install of EL-CID on your computer.

To start the Database Upgrade Wizard yourself, click the Windows **Start** button, click **Programs**, click **ELCID**, and finally click **Database Upgrade Wizard**.



Type in or use the browse buttons ... to enter the name of the folder containing the older version of EL-CID and the newer version of EL-CID. Select the types of records to transfer (Certifications, Transmitters, Receivers, Antennas, Locations, and Compliance Checks. Also select whether only Unapproved records are to be transferred, or both Unapproved and Approved records.

Note: Normally, you would leave the **Approved and Unapproved records** radio button unchecked. The EL-CID Setup normally installs all the existing approved records for you. You need only transfer the Unapproved records you've been working on from the old to the new.

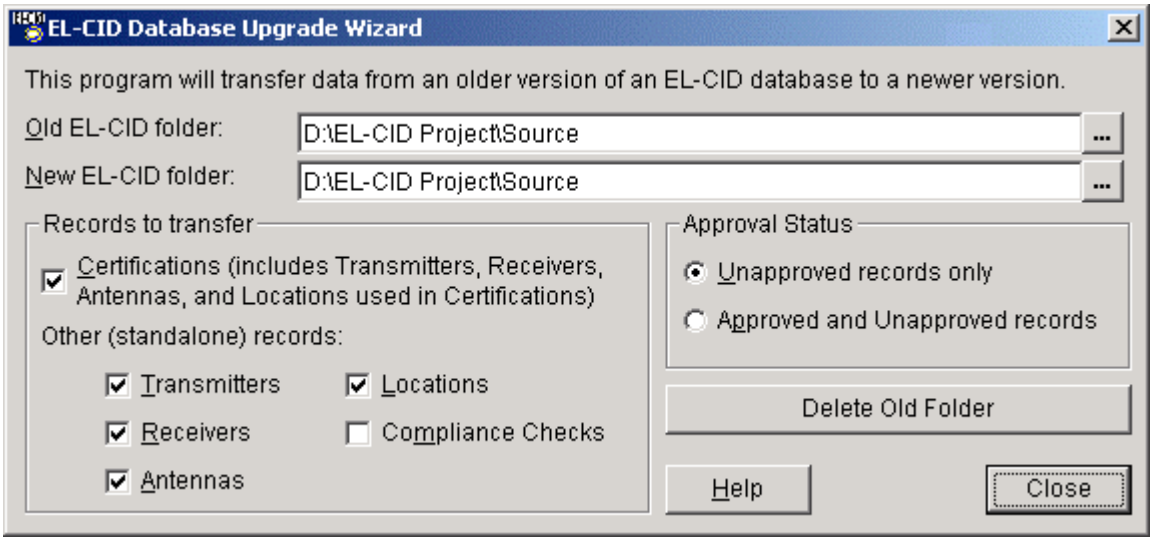
Note: If you check the **Certifications** box, the wizard will automatically transfer all equipments and Location records used in the transferred Certifications. If you also check an equipment box (**Transmitters**, **Receivers**, or **Antennas**) or **Locations** box, the wizard will also transfer any equipments or Locations that are not used in any Certifications -- so-called "standalone" records. If the **Certifications** box is unchecked, then the wizard will transfer all checked equipments or Locations, whether used in any Certifications or not.

To abandon the transfer, click the **Cancel** button. Otherwise, to transfer the checked types of records, click the **OK** button. The following screen appears

The Database Upgrade Wizard works by automatically executing the old and new EL-CID programs, exporting records from the old program and importing them into the new program. This is repeated for each type of record you have checked. This message appears because, while the EL-CID programs are running, you will not see the Database Upgrade Wizard screen. Click **Cancel** to abandon the transfer, or click **OK** to proceed.

When all records have been transferred, the following screen appears.

Click **OK**, and the Database Upgrade Wizard screen reappears.

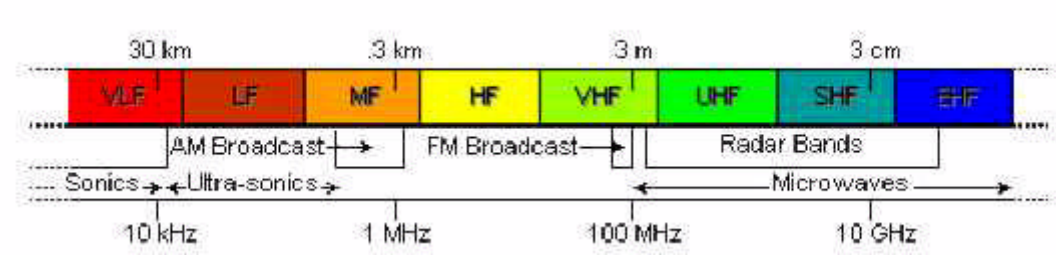


Notice that the OK and Cancel buttons have been replaced with a **Close** button. Also notice that the **Delete Old Folder** button is now enabled (no longer grayed). If you click the **Delete Old Folder** button, the folder specified in the **Old EL-CID Folder** box will be erased, including any subfolders within it.

Click the **Close** button to exit from the Database Upgrade Wizard.

NTIA

Office of Spectrum Management



The **OSM** *(Office of Spectrum Management)* is responsible for managing the Federal Government's use of the radio frequency spectrum. To achieve this, OSM receives assistance and advice from the **IRAC** *(Interdepartment Radio Advisory Committee)* . OSM carries out this responsibility by:

- Establishing and issuing policy regarding allocations and regulations governing the Federal spectrum use;
- developing plans for the peacetime and wartime use of the spectrum; preparing for, participating in, and implementing the results of international radio conferences;
- assigning frequencies;
- maintaining spectrum use databases;
- reviewing Federal agencies' new telecommunications systems and certifying that spectrum will be available;
- providing the technical engineering expertise needed to perform specific spectrum resources assessments and automated computer capabilities needed to carry out these investigations;
- participating in all aspects of the Federal Government's communications related emergency readiness activities;
- and, participating in Federal Government telecommunications and automated information systems security activities.

Additional information may be found at the Office of Spectrum Management Website: www.ntia.doc.gov/osmhome/osmhome.html

National Spectrum Management Goals

The Communications Act of 1934 provides, in Section 151, guidance regarding spectrum management objectives. It states that the FCC is to regulate:

> so as to make available . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, [and] for the purpose of promoting safety of life and property.

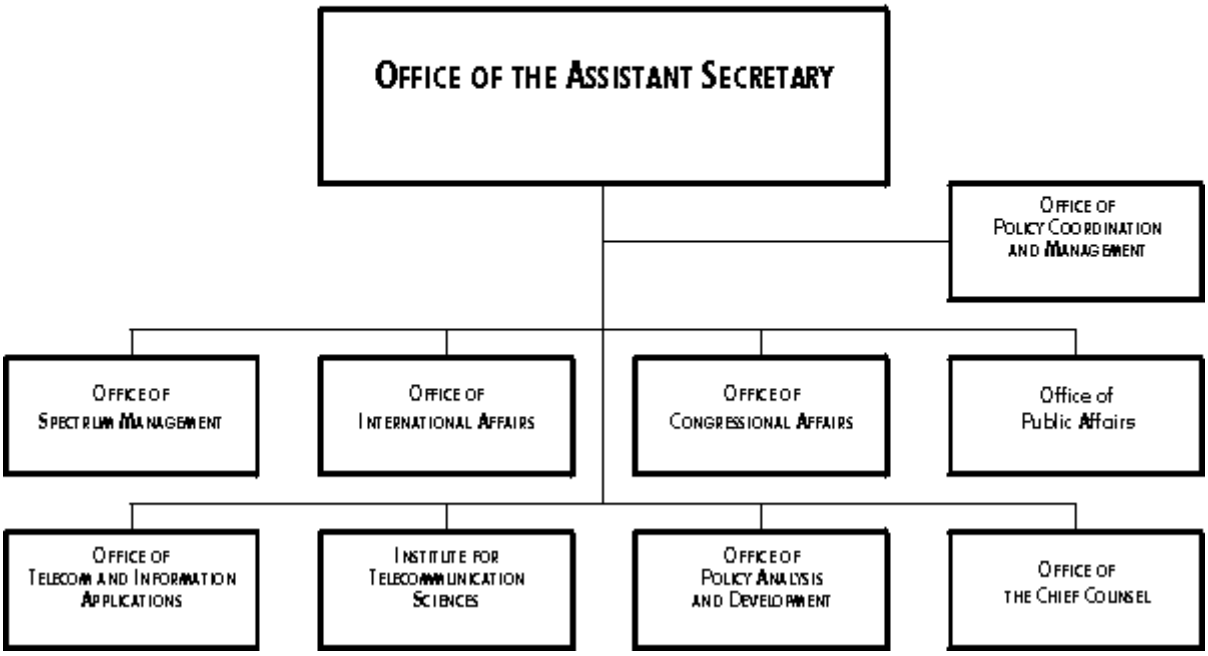
Title III of the Act authorizes the FCC to regulate generally the "channels of radio transmission," including the licensing and operation of radio stations, but provides few details on the FCC's objectives for spectrum management. The Act empowers the FCC to act consistently with the "public interest, convenience, or necessity." The "public interest" standard is the primary criterion for apportioning non-federal spectrum in the United States, although the Act mentions the goals of preventing interference among stations, promoting the efficient use of spectrum, and promoting public safety. The Act does not define the "public interest," but instead gives the FCC broad discretion to elucidate and give specific content to the public interest standard.

NTIA has identified spectrum management objectives to guide Federal users of the radio spectrum. These objectives are similar in intent to the Act's guidelines and state that the Federal agencies are to "make effective, efficient, and prudent use of the radio spectrum in the best interest of the Nation, with care to conserve it for uses where other means of communication are not available or feasible." NTIA interprets the standard "effective, efficient, and prudent," and the reference to "the best interests of the Nation" as encompassing the overall benefits the American public derives from radiocommunication services, both Federal and non-federal, as well as the needs of various Federal users and choices among competing users.

The NTIA

The **NTIA** *(National Telecommunications and Information Administration)* of the U.S. Department of Commerce was established in 1978 by Executive Order 12046. NTIA is the Executive branch telecommunications policy advisor to the President and the manager of Federal Government uses of the spectrum. NTIA responsibilities are divided among five offices and three staff groups, shown below, which work together to investigate the changing field of telecommunications as America approaches the twenty-first century.

NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION



The **OIA** *(Office of International Affairs)* provides policy analysis, technical guidance and recommendations that advance the strategic interests and the international competitiveness of the United States. OIA, together with the Office of Spectrum Management, has a leadership role in preparing for the many conferences and meetings of the International Telecommunication Union.

The **OTA** *(Office of Telecommunication Applications)* assists in the development of educational and public telecommunications services through the Public Telecommunications Facilities Program. This program provides grants for the improvement of public radio and television facilities.

The **OSM** *(Office of Spectrum Management)*, with offices in Washington, DC and Annapolis, MD, develops and implements policies and procedures for domestic issues regarding the use of the spectrum and assigning frequencies to the stations operated by the Federal Government in the United States. OSM develops long range plans and policies for the management of the spectrum, the review of Federal radiocommunication systems to make sure that sufficient spectrum is available for their compatible operation, the analysis and resolution of interference problems involving Federal radiocommunication systems, and the analysis of spectrum use in selected bands through the use of state-of-the-art analytic and measurement techniques.

The **ITS** *(Institute for Telecommunication Sciences)*, located in Boulder, CO, is NTIA's chief engineering and research arm. ITS is a centralized Federal laboratory that addresses a great diversity of technical issues associated with telecommunications. ITS addresses both spectrum related and wireline issues associated with telecommunications.

NTIA's **OPAD** *(Office of Policy Analysis and Development)* is responsible for NTIA's domestic and Federal communications policy development. OPAD develops policy recommendations on the introduction of competition into, and deregulation of, the telecommunication industry. The Office prepares wide-ranging studies of the U.S. telecommunication industry and the policies that affect it. OPAD also, in close coordination with NTIA's Office of Chief Counsel, prepares pleadings for telecommunication policy proceedings conducted by the FCC.

Regulating the Use of Spectrum

Electromagnetic waves propagate outward in all directions. A transmitter generally seeks to communicate with a particular receiver; the transmitting antenna directs the majority of the signal toward that receiver and the receiving antenna is most sensitive to signals coming from the direction of the transmitter. However, an antenna radiates signals at lower levels and can receive signals from all directions. An interfering signal will be amplified and detected just like the desired signal once it enters the receiver. If the interfering signal is sufficiently large, it can prevent the desired signal from being properly demodulated and understood.

People wishing to use radiocommunication devices in a given area must cooperate if they are to avoid interference problems. If they operate on the same frequencies, at the same time and in the same area, their transmissions will produce interference in each other's receivers. Each user, in effect, prevents other simultaneous, nearby uses of a portion of the spectrum while transmitting.

The electromagnetic spectrum exhibits some of the properties of what economists call a Common Good. Other than the cost of designing, building, and operating radio stations, its use is free. Each user has no incentive to individually use the spectrum efficiently since there is no savings; and is, in fact, motivated to secure for his own use the maximum amount of spectrum. However, uncoordinated, wasteful use can easily result in everyone suffering interference, that prevents satisfactory operation, and denies access to new users.

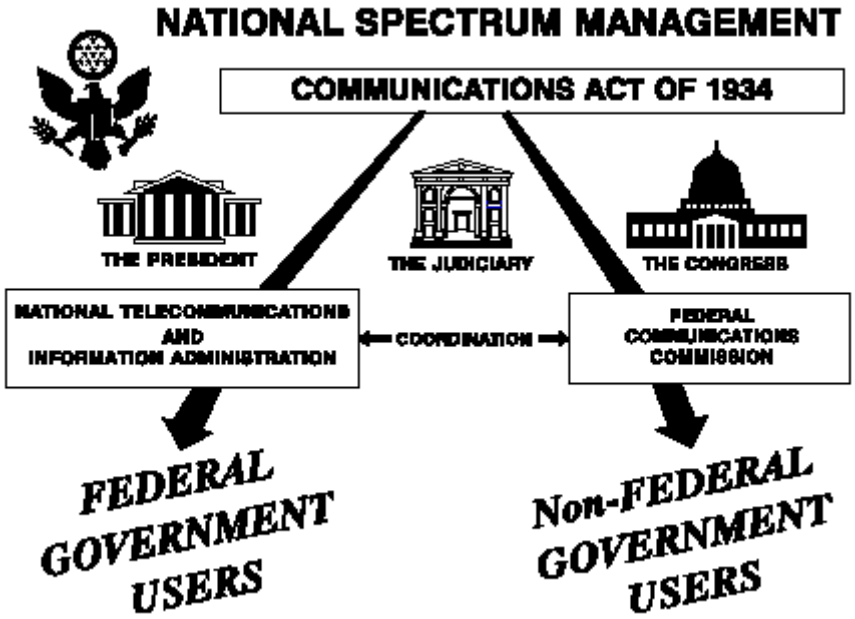
The electromagnetic spectrum is an unusual common good, or natural resource because, unlike iron, oil, or coal, it is not destroyed by use. When one user stops using a portion of the spectrum, another can readily use it. The spectrum is scarce, though, because at any given time and place one use of a portion of the spectrum precludes any other use of that portion.

The use of the radio spectrum is regulated, access is controlled and rules for its use enforced because of the possibilities of interference between uncoordinated uses. In the broadcasting service alone, the broadcaster must know where the station's signal can be received in order to meet the needs of advertisers. Interference is unacceptable because it unnaturally limits the broadcaster's market. Similarly, a taxi company or a police department must be able to reliably determine their coverage areas and know that they will be able to operate without interference in that area.

Who Regulates the Spectrum

In 1906, the year when speech and music were first broadcast using radio, the first international radio conference was held because of the widely recognized need to coordinate and control the use of the spectrum between 500 and 1500 kHz. In the United States, the clamor for regulation resulting from widespread interference caused by unchecked transmission resulted in the Radio Act of 1912. The 1912 Act required the registration of transmitters with the Department of Commerce but did not provide for the control of their frequencies, operating times, and station output powers. Thus, there was no real regulatory power, and the 1912 Act was largely unsuccessful. However, in 1922 U.S. government users of the spectrum banded together under the Secretary of Commerce to form the **IRAC** *(Interdepartment Radio Advisory Committee)* to coordinate their use of the spectrum. The Government's use of the spectrum was more easily coordinated than the public's because the IRAC represented all of the federal users, and they found that cooperation was mutually beneficial.

The Radio Act of 1927 established the **FRC** *(Federal Radio Commission)*, and the Communications Act of 1934 ("the Act", 47 U.S.C. § 51 et seq), established the **FCC** *(Federal Communications Commission)*. The 1934 Act gave the FCC broad regulatory powers in both wire-line based communications, such as telephone and telegraph systems and radio based communications, limited at the time to broadcasting, long distance single channel voice communications, maritime and aeronautical communications, and experiments that led to radar and television applications. Section 305 of the Act preserves for the President the authority to assign frequencies to all Federal Government owned or operated radio stations. In addition, the President retains the authority to assign frequencies to foreign embassies in the Washington, D.C., area and to regulate the characteristics and permissible uses of the Government's radio equipment. The IRAC, whose existence and actions were affirmed by the President in 1927, has continued to advise whoever has been responsible for exercising the Section 305 powers of the President. These powers currently are delegated to the Assistant Secretary of Commerce for Communications and Information who is also the Administrator of the **NTIA** *(National Telecommunications and Information Administration)*.



As shown above, the use of the electromagnetic spectrum in the United States is managed using a dual organizational structure; NTIA manages the Federal Government's use of the spectrum while the FCC

manages all other uses. The Act provides for the functions of developing classes of radio service, allocating frequency bands to the various services, and authorizing frequency use. However, the Act does not mandate specific allocations of bands for exclusive Federal or non-federal use; all such allocations stem from agreements between NTIA and the FCC. In other words, there are no statutory "Federal" or "non-federal" bands.

NTIA and the FCC manage their particular constituents' uses of the spectrum; however, both must keep in mind the overall general interest since 93.1% of the spectrum below 30 GHz is shared, with only 5.5% and 1.4% allocated respectively to the private sector and the Government on exclusive bases.

Systems Review Process

Spectrum-dependent systems are reviewed at various stages in their development cycle. These stages are:

Stage 1 – Conceptual,

Stage 2 – Experimental,

Stage 3 – Developmental,

Stage 4 - Operational.

System review at each stage is necessary to support the submission of frequency requests for experimental and developmental testing, and to achieve a final operational status for the proposed system.

Developers are required by the Federal Acquisition Regulation to provide technical data about the systems being procured to the appropriate systems acquisition program office or program executive office (PEO).

For major systems, copies are sent to the **NTIA** *(National Telecommunications and Information Administration)*, **IRAC** *(Interdepartment Radio Advisory Committee)*, and **SPS** *(Spectrum Planning Subcommittee)* for US national level approval.

Major communication-electronics systems, including all satellite systems, require NTIA certification that the required space in the **RF** *(radio frequency)* spectrum is available. In order to ensure **EMC** *(electromagnetic compatibility)* among electronic systems, the SPS determines where compatibility may not exist and makes recommendations on proposed courses of action to resolve those problems.

The SPS can take anywhere from three to nine months from the date of submission, depending on the system's proposed operations and compliance or non-compliance with applicable NTIA standards. If the system requires international coordination and registration, the process will take longer. The international process for reviewing Space Systems can take up to five years before final spectrum support can be validated.

The entire purpose of the review process is to protect existing and planned systems from electromagnetic incompatibilities. Each review is tailored to the specific needs of the reviewing body. If an application is submitted for a system that does not conform to the Table of Frequency Allocations, the SPS may deny spectrum certification, unless an exception is recommended by the SPS and approved by NTIA. In any case, this will delay the system review process and subsequent operations of the proposed system.

Grid Options

Grids are used throughout EL-CID to display data. There are a number of options you can perform with these grids.

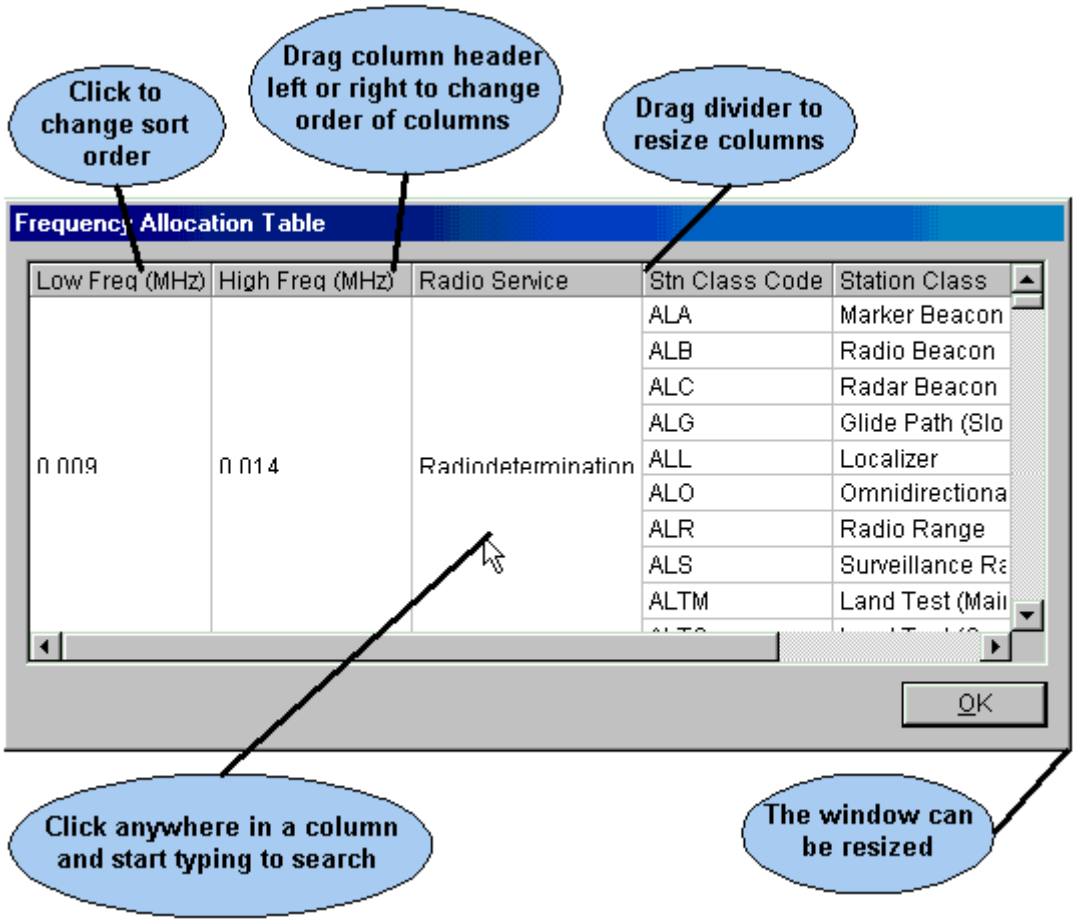
Manipulating Grid Displays

Most of the grids in EL-CID will permit you to:

- Change the width of the displayed columns by dragging the divider between the column headings.
- Change the order of the columns by dragging the column headings left or right.
- Sort the rows of the grid by clicking the column heading. Click again to reverse the sort order (ascending/descending).
- Click in any column and start typing to quickly jump to the cell that starts with what you typed. For this to work, you must type reasonably quickly. If you pause between letters for a second, the search will start over with the last letter typed.

Note: Not all the options listed above are supported by all grids in the program. Experiment to determine which options are available.

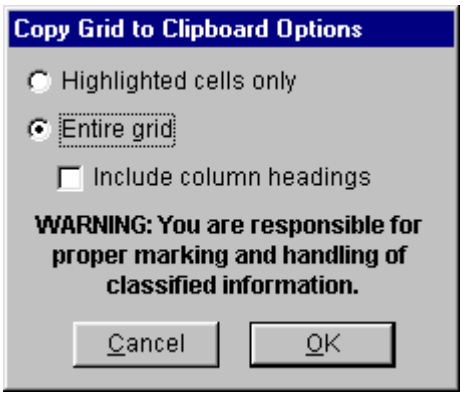
The **Frequency Allocation Table** screen contains a typical such grid.



Copying Grid Data to the Windows Clipboard

You can copy the contents of any grid in EL-CID to the Windows clipboard, then paste the data into another program, such as an Excel spreadsheet. Proceed as follows:

1. If focus is not currently on the grid, click somewhere in the grid to move focus to it.
2. Hold down the **Ctrl** key and press the **C** key. The **Copy Grid To Clipboard Options** screen appears.



3. If you want to copy only the highlighted cells of the grid to the clipboard, select the **Highlighted cells only** radio button . To copy the entire grid to the clipboard, select the **Entire grid** radio button. In the latter case, if you want to include the column headings of the grid, check the **Include column headings** check box.
4. Click **OK** or click **Cancel** to abandon copying.
5. To paste the clipboard contents into another application, switch to the other application, then hold down the **Ctrl** key and press the **V** key.

Tip: Use the Task Switching capability of Windows to switch between applications. Hold down the **Alt** key and tap the **Tab** key (don't let go of the **Alt** key). The Windows Task Switcher screen appears. While still holding down the **Alt** key, keep tapping the **Tab** key until the application you want is selected, then release the **Alt** key. The other application must already be running to use this capability.

Note: Some of the grids have hidden columns and rows. When you copy to the Windows clipboard, the hidden columns and rows are copied as well.

Note: The grid data in the clipboard is formatted with Tab (ASCII character decimal 9) delimiters between the data of each cell and CR (ASCII character decimal 13) between rows. This format is acceptable to most spreadsheet programs.

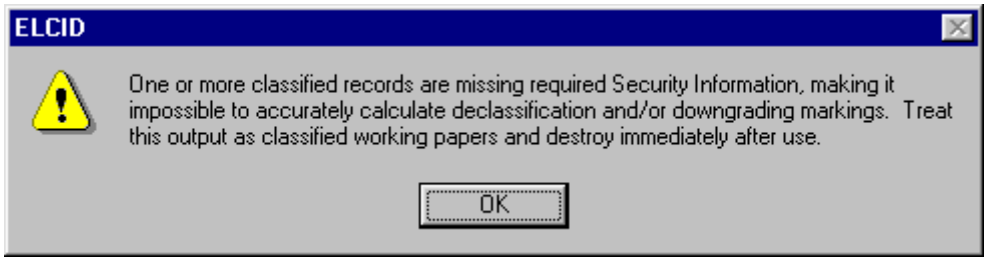
Classification Markings of Aggregate Outputs

When you print or export a single Certification record, the information you entered in the Security Information screen is used to mark the output.

Note: For performance reasons, EL-CID does not provide page-level classification marking. Instead, the overall classification of the entire output is calculated and every page is marked with this classification.

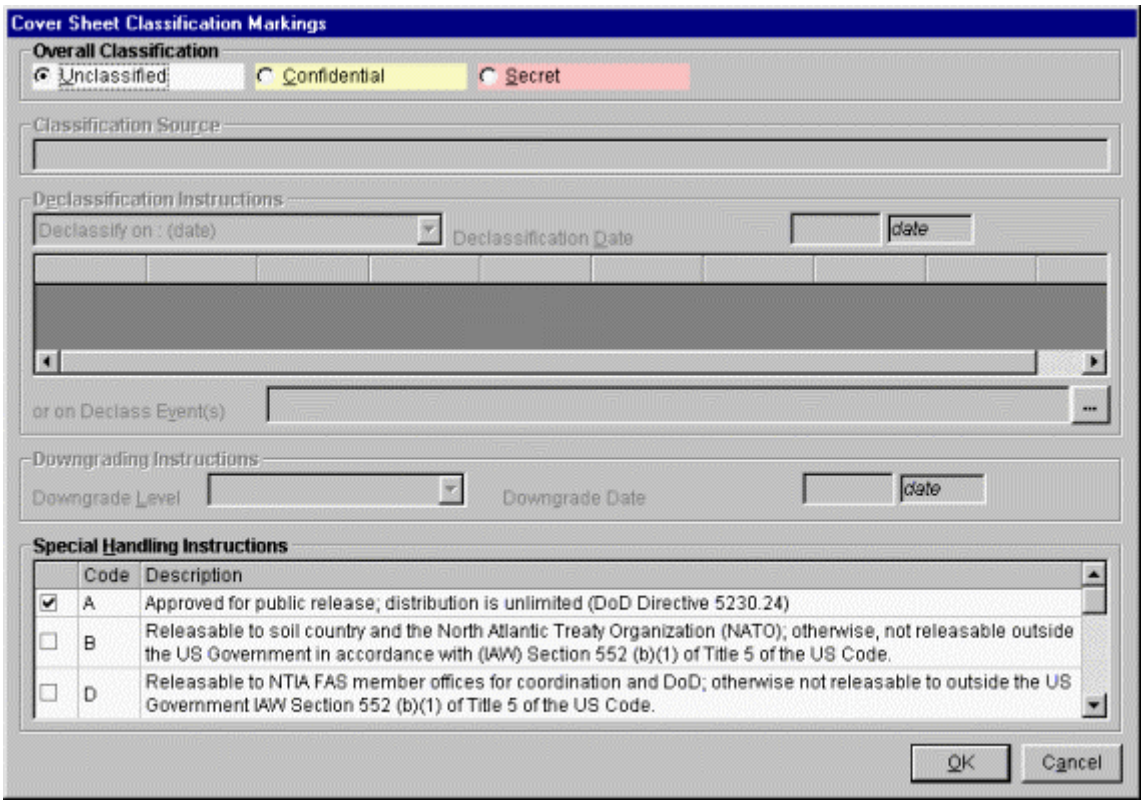
When you print or export the grid on the Query Results screen, or print the Import Record List screen, or print the Comparison Details screen, you are printing or exporting a subset of data from more than one record. In these cases, the program uses the following algorithm to calculate classification markings:

1. For each record output, an overall classification of just the data items output is calculated:
   - ✍ When outputting from the **Query Results** or **Import Record List** screens, only the classifications of the individual data items actually displayed are used to calculate the overall classification of each record. For example, suppose a Secret record is displayed in the Query Results screen, but all the columns contain Unclassified data. In this case, the record is treated as Unclassified.
   - ✍ When outputting from the **Comparison Details** screen, the program assumes that potentially the entire record is being printed and uses the overall classification of the entire record to calculate classification markings.
2. The overall classification of the entire output is calculated from the classifications determined in Step 1. When printing, this classification is placed on every page of the output.
3. Based on the calculated overall classification for each record in Step 1, the appropriate information is extracted from the record's **Security Information** screen and used to calculate the most restrictive Declassification and Downgrading Instructions. For example, suppose you are outputting only Unclassified data items from a Secret record. In this case, the record is assumed to have no Declassification or Downgrading Instructions. If any record is missing required security information, **NOT AVAILABLE** is the resulting marking. If any Certification records are missing required security information, the following warning message is also displayed.



   Since only Certification records have a **Security Information** screen, **NOT AVAILABLE** is always the result for other types of classified records (Transmitters, Receivers, Antennas, and Locations).
4. All the Special Handling Codes of the records are aggregated. If all records had a Special Handling Code of A, then the output is marked A. But, if any record has a Special Handling Code other than A, then A is removed from the aggregate. Since only Certification records have Special Handling Codes, **NOT AVAILABLE** is always the result for other types of records (Transmitters, Receivers, Antennas, and Locations).
5. If more than one record is output, **MULTIPLE SOURCES** is the Classification Source. If only one Certification record is output, the Classification Source is the record's J/F 12 Number if not blank, otherwise the record's SPS Docket Number if not blank, otherwise the record's NTIA Number if not blank, otherwise the full identifier (ID) of the record. If only one record of any other type (Transmitter, Receiver, Location, etc) is output, the full identifier (ID) of the record is used as the Classification Source.

At the conclusion of this algorithm, the **Cover Sheet Classification Markings** screen appears with the calculated markings.



This screen gives you an opportunity to override the calculated classification markings. This screen is similar to the **Security Information** screen, except that you may check more than one Special Handling Code and you may change the overall classification of the output. See Security Information for details on filling out Declassification Instructions and Downgrading Instructions.

Note: Responsibility for properly marking and destroying classified outputs lies with you -- the user. Consult with your Security Office for guidance.

Important Note: As explained above, the classification markings algorithm relies on the classification of each individual data item when calculating markings for aggregate outputs. If an output would be considered classified when several unclassified items are printed together, then all of the individual data items should be marked at that classification.

Record Access Rights

The following table lists the operations allowed on EL-CID logical records by user login type.

Logical Record	Operation	User Login Type		
Ordinary User		**Review Engineer**		**Certifier**
Certification	Create	Yes	Yes	Yes
Modify	Unapproved only	Unapproved only	Yes	
Delete	Yes	Yes	Yes	
Equipment (Transmitter, Receiver, Antenna) and Location	Create	Yes	Yes	Yes
Modify	Unapproved only	Unapproved only	Yes	
Delete	If not used in any approved Certs	If not used in any approved Certs	Yes	
Compliance Check	Create	Yes	Yes	Yes
Modify	Unapproved only	Unapproved only	Yes	
Delete	Unapproved only	Unapproved only	Yes	
Policy and Recommendation	Create	No	Yes	Yes
Modify	No	Yes	Yes	
Delete	No	Yes	Yes	
Manufacturer	Create	Yes	Yes	Yes
Modify	Yes	Yes	Yes	
Delete	Yes	Yes	Yes	
Agency	Create	No	No	Yes
Modify	No	No	Yes	
Delete	No	No	Yes	

The following table lists additional operations allowed by user login type.

Operation	User Login Type		
Ordinary User	**Review Engineer**		**Certifier**
Approve Certification, equipment, Location, or Compliance Check	No	No	Yes
Specify Certification Operating Characteristics and Recommendations	No	Unapproved only	Yes
Modify Certification Recommending Authority	No	No	Yes
Modify Certification Approval Authority	No	No	Yes
Change Certification Agency Code	No	Unapproved only	Yes
Change Certification Pre-defined Trunking System flag	No	No	Yes
Set Purge/Replace on Export	No	No	Yes
Change Manufacturer Code	No	No	Yes

Command Line Options

This topic describes the options that can be specified on the command line when starting the EL-CID program. This capability is primarily used by the EL-CID Install program to install data or upgrade databases, but may be useful to advanced users.

Note: If not used correctly, command line options can lead to program errors or corrupted data. The EL-CID program does a minimum of error checking of command line options. Use with caution.

The syntax of an ELCID command line is:

elcid [Import File Name [/N[oPrompt]]] [/L Agency Code] [/Q[uery] Query File Name [/X[port] Export File Name]]

Bracketed items are optional.

If an import file is specified, the /Q and /X options may not be used.

The /L option may be combined with any of the other options.

The /X option may only be used in conjunction with the /Q option.

Import and Export file names must end with ".cid".

No checking of the specified agency is performed when using /L option, so be careful!

Examples:

elcid Some Import File.cid

Start EL-CID and automatically begin import of the file named "Some Import File.cid". Stop to allow user to confirm import.

elcid Some Import File.cid /N

Start EL-CID and automatically import the file named "Some Import File.cid" without prompting user for confirmation, then exit program. If the import file is a Purge/Replace file, it will automatically purge and replace.

elcid /Q All Unapproved Certs.txt

Start EL-CID, automatically load the query in file named "Unapproved Certs.txt", and execute it, displaying results in Query Results screen.

elcid /L NTIA /Q All Unapproved Certs.txt /X MyExport.cid

Start EL-CID, automatically log in as NTIA, load the query in file named "Unapproved Certs.txt", execute it, displaying results in Query Results screen, then export all the selected records to the file named "MyExport.cid" and exit EL-CID. All this will be performed without prompting user unless there is an error.

Planned Enhancements

NTIA wants your feedback on EL-CID. See Obtaining Software Support.

The following are enhancements planned for future versions of EL-CID:

- Import data from the Spectrum Certification System (SCS).
- Add DoD data items. Print DoD versions of 1494 forms.
- Perform Host Nation Coordination.
- Additional Compliance Checks, particularly those specified in the notes in Chapter 5 of the NTIA Manual.
- Network exchange of data.
- Import Frequency Allocation Table from the TOA application currently under development.
- Digital Signature and record checksum to ensure that once a record has been officially approved and signed, it is not modified.

Program Limitations

This topic lists a variety of software limitations of interest to advanced EL-CID users. Beginning users can safely ignore this topic.

Maximum System Name length.	35 characters.
Maximum Station Name length.	64 characters.
Maximum Nomenclature length.	35 characters.
Maximum System Description length.	Since it is a memo field, System Description is limited to 65K characters.
Maximum number of records (Certifications and equipments) per database.	The maximum database size (ELCID.MDB) is 1 gigabyte. An "empty" database is 7.8 megabytes.
Maximum number of stations per Certification.	16K but also limited by system memory and performance.
Maximum number of links per Certification.	16K but also limited by system memory and performance.
Maximum "size" of a Certification.	The Tree View will support up to 16K nodes in the tree outline.
Maximum number of equipments per station.	Unlimited but the Tree View will support up to 16K nodes in the tree outline.
Maximum number of frequencies/powers/emissions per transmitter or receiver.	Unlimited but the Tree View will support up to 16K nodes in the tree outline.
Maximum number of rows displayed in Query Results grid.	16K but also limited by system memory and performance.
Maximum number of query conditions in a query.	16K but also limited by system memory and performance.

Keyboard Shortcuts

The following tips will assist users who prefer to use the keyboard rather than the mouse.

In general, the **Tab** key should be used to move from one item to the next; not the **Enter** key.

Press the **F10** key for quick access to the main menu.

Grids

Throughout EL-CID a number of screens display data in a grid. To navigate up/down or left/right in these grids, use the arrow keys. One exception is the Tree View. On this screen, hold down the **Shift** key while using the arrow keys to navigate in the grid. Press the **Tab** key to move off the grid elsewhere on the screen.

Pick Lists

When the cursor is on a pick list, press the down or up arrow keys to scroll through the pick list. Hold down the **Alt** key and press the down arrow key to drop the pick list down. In many cases, you can also select items in the pick list by typing the starting characters.

Tree View

To navigate within the data item grid, hold down the **Shift** key while pressing the arrow keys.

When the cursor is on a node of the tree, press the right arrow key to expand the node. Use the left arrow key to collapse the node. Use the up and down arrow keys to scroll through the tree.

Frequencies

When entering frequencies, you can use the standard MCEB format as a shortcut to entering the value and units. For example, entering K50, will enter a value of 50 and select kilohertz, regardless of the current units selected. Use a T for terahertz, G for gigahertz, M for megahertz, K for kilohertz, or H for hertz. The units may precede or follow the number. For example, K50 and 50K are both acceptable. You can also enter frequencies using scientific notation. For example 12000 would be entered as 12E3.

Line Diagram

The Diagram cannot be operated without a mouse.

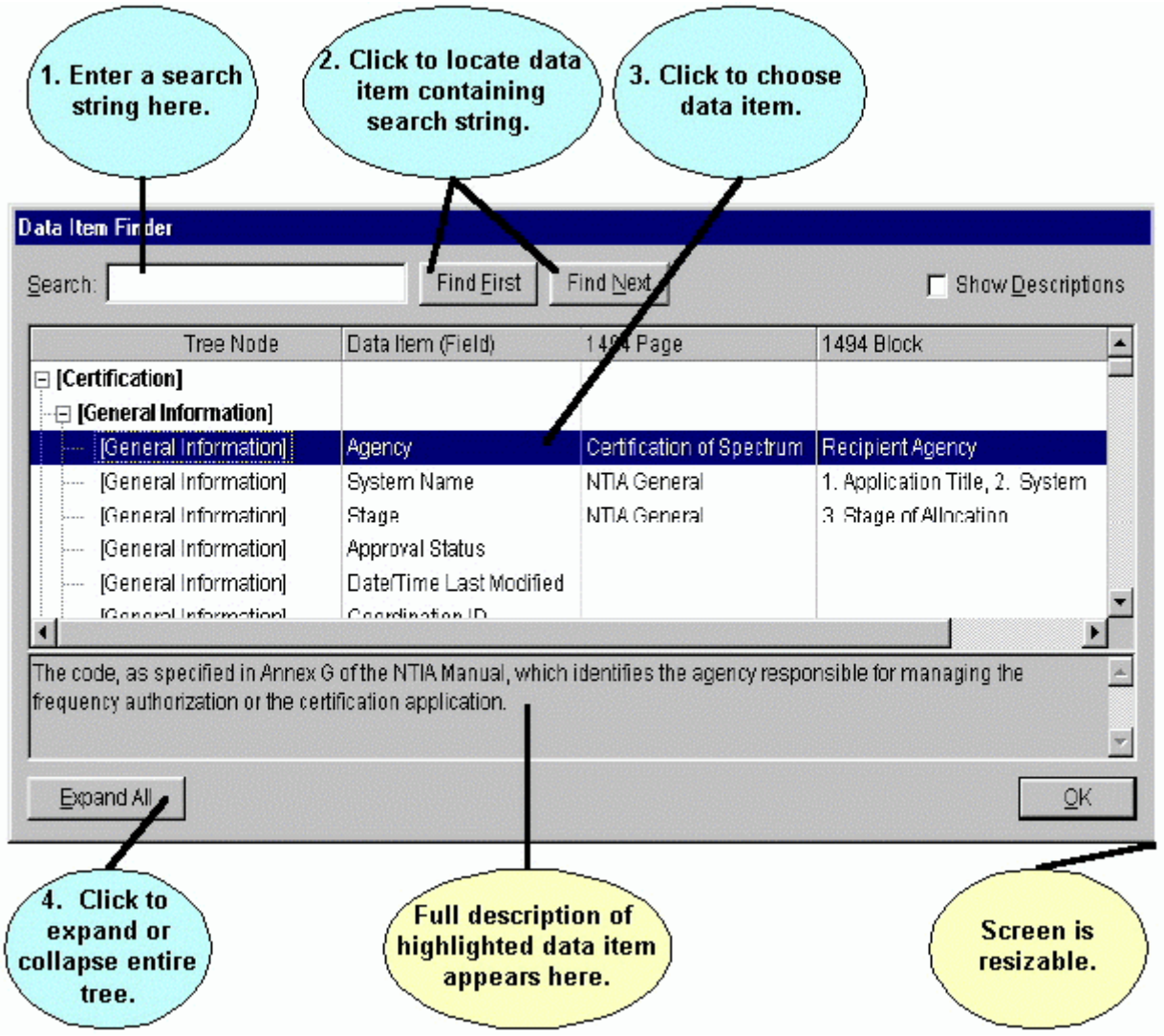
Map

The Map screen cannot be operated without a mouse.

Data Item Finder

While working on EL-CID records, especially in the Tree View, you may have difficulty finding a specific data item. The Data Item Finder will help you locate where the item is in the tree. The Data Item Finder will also help you to cross-reference EL-CID data items to the individual blocks on 1494 printed forms.

To display the Data Item Finder, click **Help** on the main menu, then click **Data Item Finder**. The **Data Item Finder** screen appears.



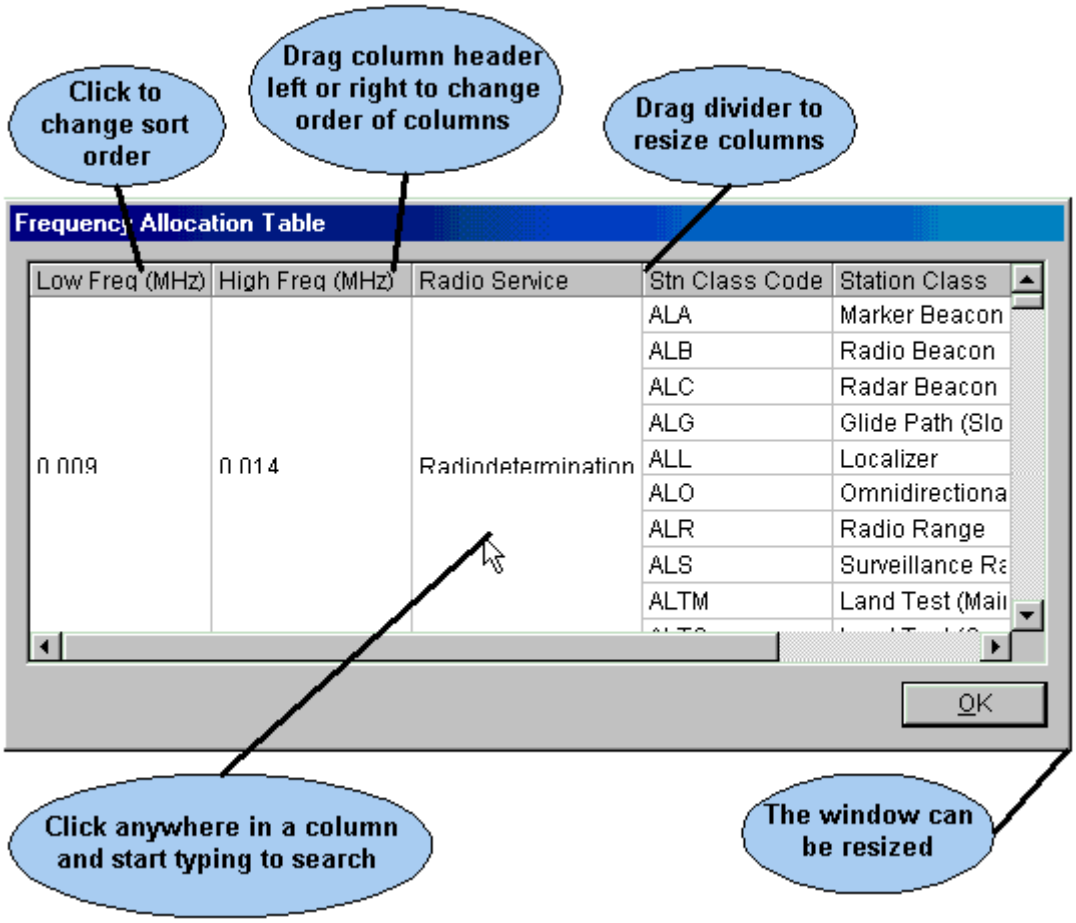
This screen lists all the data items used in EL-CID in a tree-like structure closely paralleling the same structure used in the Tree View screen. It also shows the page and block where items are printed on 1494 forms.

To locate a data item whose name you are not sure about, enter a string in the **Search** box and click the **Find First** or **Find Next** buttons. **Find First** locates the first data item containing the search string. **Find Next** locates the next item after the currently-highlighted item containing the search string. Searches are case-insensitive, i.e., a search on the string "power" is identical to a search on the string "POWER". When searching, the program searches Tree Node name, Data Item name, 1494 Page, 1494 Block, and the full description of each item.

When you have found the item you are interested in, note the **Tree Node** that it appears in. Also note the nodes that are above the node in the tree hierarchy -- the parent nodes. In the Tree View screen, you will need to expand those nodes. You may also need to right-click on those nodes in order to add the desired node to the record. For example, suppose you want to know how to add Harmonics to your transmitter record. Enter "harmonic" in the **Search** box and click **Find First**. The **Spurious Emission Level** item is highlighted, which is not what you seek. Click the **Find Next** button. The **[Harmonic]** node is highlighted. Click **Find Next** and the **Harmonic Number** data item is highlighted. Click **Find Next** a 3rd time and **Harmonic Emission Level** is highlighted. From the description of the item, you realize that this is the data item you want to enter. Now note that **Harmonic Emission Level** is in the **[Harmonic]** node, which is a child of the **[Transmitter]** node (scroll up to see the [Transmitter] node). Therefore, to add Harmonic Emission Level to your Transmitter record (assuming it does not already have a Harmonic), you must right-click on the [Transmitter] node in the Tree View and choose **Add Harmonic**.

Frequency Allocation Table

To display the complete frequency allocation table built into EL-CID, click **Help** on the main menu, then click **Frequency Allocation Table**.



Click **OK** to close the screen.

Note: The Frequency Allocation Table built into EL-CID is an adaptation of the table published in the NTIA Manual with the footnotes incorporated.

Version History

Listed most recent to oldest:

- Version 2.0 (August 2003). Major changes include:
  - The Line Diagram is now displayed and edited within the Tree View screen, simplifying the user interface.
  - The ability to display, create, edit, and query on locations using a visual map.
  - The ability to reference other documents without attaching them.
  - The ability to create, edit, and print individual equipments independent of a Certification. This allows Program Managers to ask manufacturers to enter equipment data for them.
  - A Database Upgrade Wizard to migrate data from earlier versions of EL-CID to the most recent version.
  - Integration with the Radio Bureau ITU software (Spacecap).
  - Compliance Checks from Chapters 5 and 10 of the NTIA Manual have been added. In addition, Compliance Checks may be run against individual equipments independent of a Certification. Note that not all of Chapter 5 has been implemented. Chapter 10 Compliance Checks differ in some details from the current NTIA Manual (May 2003).
- Version 1.0. (October 2002) Official release of EL-CID.
- Beta 1. (Version 1.0 revision 70, October 2001) First public release of EL-CID to customers of NTIA and other agencies.
- Alpha. (Version 1.0 revision 27, April 2001). Release internal to NTIA for concept approval and evaluation.

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